The Milbank Memorial Fund

QUARTERLY

CONTENTS

Vol. XV JULY 1937 No. 3

Edited by the Technical Staff

Published quarterly by the MILBANK MEMORIAL FUND, 40 Wall Street, New York, New York. Printed in the U. S. A. Subscription: $1.00 a year

IN THIS ISSUE

TRADITIONAL to our national life and history has been an ever-increasing population. Only by virtue of a favorable age-distribution, and a legacy of high birth rates in the preceding generation, do births now exceed deaths. With the aging of our present population, and barring liberalization of immigration laws, a stationary population is due in the near future. Students of population universally accept this forecast, but they are not unanimous in their interpretation of its significance. In the preceding issue of this *Quarterly,* Dr. O. E. Baker, Senior Agricultural Economist in the Department of Agriculture, gave a gloomy description of the possible repercussions of the dwindling birth rate on agricultural problems. A more optimistic interpretation is made in the first article, "The Significance of Imminent Population Changes in the United States," by Dr. Frank Lorimer, secretary of the Population Association of America and co-author of DYNAMICS OF POPULATION.

Promotion of better nutrition through education is one of the major problems of health agencies and the need to teach families the essential facts about proper diets and how to spend their income to the greatest advantage is receiving an increasing amount of attention from health workers. How the nutritional education program was combined with the general health supervision activities in the East Harlem Nursing and Health Service in New York, is described by Bertha B. Edwards, nutrition supervisor for the Service in the article, "Experiences of a Nursing and Health Service with the Nutrition Problems of a Community," on page 219. The apparent success of their work and the wealth of experience acquired during nearly fifteen years of work make the policies developed of especial interest.

The failure of maternal mortality to decline has led to a large number of investigations of this problem, most of which have consisted of de-

tailed analyses of maternal deaths. Recognizing that the investigation of deaths alone had definite limitations as a means of interpreting the conditions under which death occurs, the Fund has made several surveys to collect data for typical groups of women. One type of information obtained related to the frequency of abortion, as little is known of its true incidence, and from one-fourth to one-third of all maternal deaths are associated with pregnancies terminated before the last trimester of pregnancy. In the article on "Pregnancy Wastage in New York City," Dorothy G. Wiehl and Katharine Berry have brought together data from several studies indicating the incidence of abortion. Histories of pregnancies of living women show a pregnancy loss in the previable period of gestation of about fifteen per cent, a figure much lower than most estimates which have been made for New York City.

A physically healthy population is, perhaps, an unattainable ideal but an ideal toward which, few will deny, it is worth striving. Health is threatened not only by accidents and acute diseases in the control of which rapid progress is being made, but also by chronic ailments and defects broadly classed as "impairments" whose control in many respects presents a far more involved problem. Basic to any control program is a knowledge of the prevalence of the conditions to be attacked. With the understanding that such knowledge provides not only additional incentive but specific strategy for the attack, the Milbank Fund has made, or assisted in, several such studies in the past, the most notable being the series on the "Diseases of Adult Life" by Sydenstricker and Britten, and morbidity surveys of population groups such as those in Hagerstown, Cattaraugus, and Syracuse. The article on page 248, "Impairments in a Rural Population," by Dr. Ralph E. Wheeler, discusses the general prevalence of impairments found by the medical examination of a large group of rural people and shows how far short of the ideal this typical population is.

Inasmuch as marriage is the initial step in the establishment of a family, there is a close relation between marriage rates and population increase. A shortage of about one million births from 1930 to 1935 has been attributed to the subnormal marriage rate during the depression. In the article starting on page 262, "Recent Analyses of Marriage Rates," Mr. Kiser has given particular attention to several studies purporting to describe the impact of the depression on marriage rates in various popu-

lation groups. The reviews have been supplemented by his own analysis of 1925-1935 trends in marriage rates among selected groups of native whites, foreign whites, and Negroes in up-state New York.

The measurement of results of public health practice has been of interest to the Fund for several years, and since public health nursing activities form so large a part of health programs, analyses have been undertaken of the work which the nurses carry out in different types of communities. Studies of the various phases of public health nursing practice in Cattaraugus County and other rural areas, and in urban centers in Syracuse and New York City have shown the extent to which the people with different health problems have received nursing services, and the relation of various amounts of nursing service to the accomplishment of specific results. The last article in this issue, by Marian G. Randall, discusses "Family Composition and the Analysis of Home Visits by Public Health Nurses," and uses a sample of low-income families in the Bellevue-Yorkville district of New York City and the visits by health department nurses to illustrate the way in which health supervision services for children are extended to all children in the family, and the further administrative use of the family records.

THE SIGNIFICANCE OF IMMINENT POPULATION CHANGES IN THE UNITED STATES

by FRANK LORIMER

In the preceding issue of this *Quarterly,* Dr. O. E. Baker, Senior Agricultural Economist, United States Department of Agriculture, pictured a dark outlook in *Significance of Population Trends to American Agriculture.* In the present article, Dr. Lorimer, secretary of the Population Association of America, examines the assumptions and interpretations set forth by Dr. Baker.

THE EDITORS.

THE issues raised in the article by Dr. O. E. Baker in the April number of this *Quarterly,* "Significance of Population Trends to American Agriculture," are matters of vital importance to the national welfare. They merit intensive study and general consideration. This paper is an attempt to explore their implications further, and from several different angles.

The outstanding fact to which Baker calls attention is the present trend toward cessation of population growth and the approach of a period of population decrease in the United States. This trend, as regards natural population change, is well established; but there is room for much difference of opinion about some important details. For example, according to the "medium" estimates of Thompson and Whelpton, the turning point will not come until after 1980, rather than "about 1950, perhaps sooner," as predicted by Baker.

The situation may be briefly summed up as follows. The immediate population prospect is that of a population approaching stabilization as regards total numbers during the next few decades. Meanwhile, the intrinsic reproductive tendency of the population is moving in the direction of eventual rapid decrease. Furthermore, it must be recognized that no large group enjoying a high standard of living and characterized by voluntary control of reproductive processes has yet demonstrated a capacity for effective population replacement. The "true" rate of natural increase (adjusted to elimi-

nate the effects of "abnormal" age distribution) of the population of the United States is now slightly below the population replacement level. And the present approximate balance in reproductive tendency exists only by virtue of the element of involuntary reproduction still characteristic of many population groups, especially farm families in poor rural areas. Among population groups in the United States where reproduction is largely voluntary, the tendency is probably similar to that observed in Great Britain and Sweden. The expansion of the pattern of voluntary family limitation, which we may assume to be both inevitable and desirable, will establish a definite trend toward population decrease. This general statement may be accepted as substantially accurate. But before we proceed to intriguing and elusive questions of significance, let us examine the expected course of population change in the United States in somewhat greater detail.

The alternative assumptions as regards fertility used in recent estimates by Thompson and Whelpton are described below.[1] The present writer considers the "high" assumption, that age-specific birth rates remain constant, quite improbable. He expects that birth rates in this country will actually follow a course between the "medium" and "low" assumptions, as here defined:

> With birth rates at each age of life as they were during 1930-1934, 1,000 native-white women living through the childbearing period bear 2,158 children. Counting only women who marry (before age 50), there are about 2,410 births per 1,000 married women. Decreasing the number of women still further by excluding those who bear no children (estimated at about one-sixth of the group) raises the expected number of births to approximately 2,900 per 1,000 fertile women. In other words, under birth rates of recent years the average native-white woman living to age 50 bears approximately two and one-fifth children; if only those to

[1] Reference is made here to revised estimates of the future population of the United States, prepared by Warren S. Thompson and P. K. Whelpton of the Scripps Foundation for Research in Population Problems, for the National Resources Committee, which will be published in the forthcoming Report of the Committee on Population Problems: PROBLEMS OF A CHANGING POPULATION.

whom births occur are counted, the average does not rise quite to three children per woman. In view of the past trend in the United States, and the lower rates that prevail in certain other nations, the highest assumption that seems justified for native-white women in the future is a continuation of the present rates.

As a probable lower limit, it is assumed that the decline in birth rates will continue until 1980, although at a rapidly diminishing rate. For native whites the maximum decrease anticipated in the fifty years after 1930-1934 amounts to 31 per cent compared with the 34 per cent decline in the twenty-five years prior to 1930-1934. According to this low assumption there will be about 1,500 births per 1,000 women living to age 50, or one and one-half births to the average woman. Allowing for childless women raises this to about two births to the average fertile woman. This is approximately the present situation in California and Washington, D. C., as well as in all of England.

The medium assumption for native whites continues the past decline in birth rates, but slows it up much more rapidly than the low, the 1980 rate being somewhat nearer the high than the low. It anticipates a decrease of about 13 per cent in the next fifty years, with 1,000 women living through the childbearing period having about 1,900 births. This is slightly less than an average of two births for all women, and slightly more than two and one-half per fertile woman. It is approximately the 1930 rate in Massachusetts, Connecticut, Washington, and Oregon, and also in Sweden. In the opinion of the staff of the Scripps Foundation these medium birth rate assumptions are more likely to be followed than either the high or the low. It is admitted, however, that there must be a rather rapid change in attitude regarding the desirability of three and four-child families if this medium trend is not to prove too high.

Birth rates to native-white women are somewhat lower than those to foreign-born white, Negro, and other colored women. In the high assumptions this differential is maintained, but in the medium assumption it is reduced by one-fourth, and in the low by one-half on the basis that the higher the rate the greater the opportunity for loss in a period of general decline.

With "low" birth rates, "medium" death rates, and no net immigration, Thompson and Whelpton obtain a peak population slightly under 140,000,000 in 1955. This is followed by a gradual

decrease. The estimated population for 1980 on these assumptions is still about 6,000,000 above the population in 1935. A combination of low birth rates and extreme restrictions on immigration would cause the population of the United States to remain practically stationary for the next fifty years.

If a stationary population is an ideal situation, and Baker suggests that it may be the most desirable economically, then it may appear at first sight that the outlook for population represents a close approximation to the ideal. More intensive analysis, however, reveals that in spite of the very gradual changes in total population expected during the next fifty years, intrinsic forces making for rapid natural decrease may be brought into play.

There is, at present, an excess of persons in the reproductive age classes above that normally to be expected on the basis of present age-specific birth and death rates. Thus, in 1930, 47.6 per cent of all white females were included within the age bracket 15-44 years, whereas in a stable population corresponding to fertility and mortality conditions at that time, the corresponding proportion would be 42.4 per cent.[2] Such a condition cannot continue indefinitely in a stationary or decreasing population. The number of women entering the childbearing ages is obviously a function of the number of births occurring fifteen to twenty years previously. Up to about this time, the number of births each year has been sufficient or more than sufficient to supply a "normal" accession of women to the childbearing ages fifteen to twenty years hence. Thus, accessions to these ages will remain "normal" up to about 1955. Thereafter there will be a deficiency in such accessions, although the proportion of females within the childbearing ages may be "normal" for a decade or more thereafter. In other words, the differential between the "crude" rate and the "true" rate of natural increase in the United States will not disappear until about 1965. But if by that time the net reproductive tendency of the population has fallen to a level as

[2] *See Population Index*, April, 1937, iii, No. 2, p. 97.

low as that already observed in England and Wales and in Sweden (0.73 per generation, data for 1933),[3] toward the end of the century there will be only three-fourths as many women of childbearing age as there were in the sixties, and if these in turn have only three-fourths as many children as are needed for replacement, there will be established a trend toward a very rapid natural decrease. This is succinctly expressed by Baker. "The declining number of such women will supplement the decline in births—both factors will work in the same direction."

What, then, are the economic and social consequences of a declining population? And what measures, if any, would seem to be socially desirable in meeting the challenge presented by the present demographic situation? We may first ask: What are the economic consequences of a declining population? So far as the present writer can see, the economic aspects of the situation are important but not in any way alarming. Much ado is frequently made about the increasing burden of a large proportion of aged persons. As a matter of fact, however, even on the assumptions of "low" fertility, "medium" mortality, and no net immigration of foreign-born persons, mentioned above, 55.8 per cent of the total population of the nation in 1980 is expected within the productive age class 20-64 years, whereas the corresponding proportion in 1930 was only 52.4 per cent. The number of aged persons is normally much less than the number of children. In a stationary, normally distributed population corresponding to death rates for white males in the United States 1929-1931, 27.8 per cent of all males would be under eighteen years of age, in contrast to 10.5 per cent aged sixty-five or over. The proportion of persons in the productive age classes is likely to be larger in a slowly decreasing than in an increasing population. We are, fortunately, becoming aware of the problems associated with the employment of older persons and the economic security of retired persons. These problems must be met; but

[3] *Op. cit.*, p. 98.

there is no reason to assume that they cannot be met effectively.

The interesting question of the relation of population change to the accumulation and use of capital resources is the topic of the Galton Lecture by J. M. Keynes, February 16, 1937.[4] The point of view represented in this lecture is perhaps as significant as the interesting statistics introduced in the presentation:

> . . . Unquestionably a stationary population does facilitate a rising standard of life; but on one condition only—namely that the increase in resources or in consumption, as the case may be, which the stationariness of population makes possible, does actually take place. . . .
>
> With a stationary population we shall, I argue, be absolutely dependent for the maintenance of prosperity and civil peace on policies of increasing consumption by a more equal distribution of incomes and of forcing down the rate of interest so as to make profitable a substantial change in the length of the period of production. . . .
>
> A too rapidly declining population would obviously involve many severe problems, and there are strong reasons lying outside the scope of this evening's discussion why in that event, or in the threat of that event, measures ought to be taken to prevent it. But a stationary or slowly declining population may, if we exercise the necessary strength and wisdom, enable us to raise the standard of life to what it should be, whilst retaining those parts of our traditional scheme of life which we value the more now that we see what happens to those who lose them.

Aside from changes in age distribution, all of the economic consequences ascribed by Baker to a decline in births are functions of differential reproduction rates rather than of general level of fertility in the total population: the tendency of the rural-urban differential in fertility to force a maldistribution of population; the economic cost to rural areas of continued emigration of young people at the threshold of productivity activity; and the influence of differential reproduction on concentration of wealth. All of these particular ills would be cured as effectively through a decrease in the fertility of groups with high birth rates as through an increase

4 Keynes, J. M.: Some Economic Consequences of a Declining Population. *The Eugenics Review*, April, 1937, xxix, No. 1, pp. 16, 17.

in the fertility of groups with low birth rates—and during the next few decades the former change seems much more likely to come about on a large scale than the latter. This would still leave unsolved, in fact this would intensify, the trend toward decline in national population. But if we can establish a high economic and cultural level in American life, our sons and daughters may be prompted to establish conditions of living more favorable to reproduction. In order to achieve this high purpose, they may need to establish a more cooperative economic order, new institutions, and a new philosophy of life. Meanwhile, any attempt to prevent a decrease in numbers through constraint or artificial rewards might intensify rather than mitigate the evil effects of present differentials in reproduction among population groups in this country.

The complexity of the problem is illustrated by examination of the relation of general population trends to distribution of population, with special reference to the balance between the population engaged in the extractive industries, especially agriculture, and the population engaged in manufacturing, mutual exploitation, and service—the former being predominantly rural, the latter being predominantly urban. Baker here arrives at the surprising conclusion that a decline in national population will lead to increasing population pressure on the poorer lands and the further impoverishment of farm families. The argument on which this conclusion is based rests on four assumptions: (1) the difference between urban and rural birth rates will persist; (2) this will cause a more rapid decline in urban than in rural population, unless migration from rural to urban areas is accelerated; (3) per capita consumption of farm products will remain fairly stationary; and (4) there is no prospect for any great increase in agricultural exports except possibly in the case of cotton, tobacco, and fruit.

All of these assumptions, except the last, seem to the present writer to be extremely hazardous. There is definite indication that during the last two decades fertility has been declining most rapidly

among groups now characterized by very high birth rates. The very striking decline in the birth rates of the foreign born, who are largely concentrated in cities, is an instance in point. This is largely responsible for the conspicuous decline in urban births in recent years. Among native elements fertility has been declining more rapidly in rural than in urban areas. Thus, comparing ratios of children under 5 years of age to native-white women aged 20-44 years, we find that between 1910 and 1930 fertility dropped 12.3 per cent in rural areas as compared with a decrease of only 4.8 per cent in urban areas. Comparable data for rural farm and for rural nonfarm populations are available only for the last decade. Here we find a decrease of 8.4 per cent in the fertility of native-white rural farm women as compared with a decrease of 5.3 per cent for the native-white rural nonfarm women. Interestingly enough, the most rapid decreases during this period are found in the agricultural Gulf States and in some of the far western states. We may expect the persistence of a moderate differential in fertility between rural and urban areas for many decades, but this differential is likely to be very greatly diminished in the near future.

In any case, emigration from rural areas in the decade preceding the depression was more than sufficient to offset differentials in natural increase, causing a net decrease of more than one million in the farm population between 1920 and 1930. In many sections of the country, the farm population in poor areas actually decreased in spite of high fertility. Among the twenty-nine counties with the highest percentage of population on relief in 1933-1934, we find that the index of net reproduction per generation, based on 1930 age-distribution data, was above 1.50 in twenty of these counties, and above 2.00 in eleven cases. In spite of this fact, fifteen of these counties lost population between 1920 and 1930; in seven cases the increase was negligible or data were not available; in only two counties (Wayne County, West Virginia and Martin County, Kentucky) was there an increase of more than 10 per cent during this period.

It is true that reduction of population in poor farm areas through emigration was partially blocked during the early depression years. But there is good reason to suppose that this tendency is being resumed in full force as recovery progresses.

Any general increase in economic well-being will result in increased demand for agricultural products, especially increased demand for more expensive types of food—although this increase may be less rapid than that for many other types of goods and services. The demand for agricultural products may be relatively inelastic, but it is by no means static. There is, in fact, a possibility that the raising of nutritive levels in the United States may lead to a very considerable increase in demand for certain products, especially dairy products, leafy vegetables, and fruits. Even with fewer babies, we still need and may use more milk.

Nevertheless, there are far too many persons in agriculture, and this was true before the depression. In 1929 the families on 49 per cent of all the farms in the United States (with gross value of products less than $1,000) produced only 11 per cent of all farm goods sold or traded, and somewhat less than their half of farm products consumed at home. If this half of the farm population of the United States were withdrawn from agriculture, the resulting deficiency of production could easily be made up by increased production on the better farms. The poverty of these families on poor farms is proportional to the meagerness of their economic contribution. One symptom of their condition is an extremely high, largely involuntary fertility. In the counties with lowest rank on the plane of living index of the Study of Population Redistribution (the poorest one-sixth of all counties), the reproduction index based on 1930 age-distribution data shows fertility 77 per cent in excess of that necessary to replace the population permanently. The existence of large depressed agricultural groups, with meager patrimonies divided among many children, poor educational facilities, a discouraging outlook at home, and the necessity of forced emigration,

presents one of the most serious aspects of the present population situation. It is hardly practical to suggest that the rest of the nation set out to match these groups in fertility. Two spontaneous corrective tendencies seem to be already at work: (1) the tendency for the less privileged and more isolated groups to adopt the pattern of family limitation already in force among the more prosperous, and (2) the tendency for people to leave problem farm areas in sufficient numbers to reduce population in such areas. There seems to be some likelihood that these tendencies will be supplemented by national efforts directed toward improvement of school facilities, health facilities, and other means of raising standards of living in poor areas. Every consideration, except anxiety for the maintenance of population at any price, points to the desirability of encouraging these developments. We must, nevertheless, clearly recognize that a rise in the standards of living of the farm population, extensive emigration from areas of low opportunity, and the accompanying shift from involuntary to voluntary reproduction on the part of many rural families will definitely accelerate the forces making for natural population decrease.

Must we then accept a trend toward population decrease as inevitable? Frankly, as regards the immediate future, in my judgment, we must. The people of Europe and their descendents increased, according to estimates by Willcox, from about 100,000,000 in 1650 to 642,000,000 in 1929. The people of western Europe and the United States may sustain a loss in total population during the next half century, or more, but this change need not spell disaster. It may be accompanied by continued technological progress and it may conceivably facilitate the improvement of economic and political relations. The trend toward decline in reproduction has been developing during many decades. It is one of the fundamental aspects of our present civilization. The establishment of sound population trends will require many fundamental changes in social organization and outlook. Such changes cannot be made suddenly.

The dangerous aspect of Baker's presentation seems to me to be an apparent willingness at times to countenance measures that may be unsocial or dysgenic as means of combating the trend toward population decrease. If the price of population maintenance be the perpetuation of involuntary parenthood or rural poverty, it may be questioned whether the game is worth the candle. I do not mean to imply that Baker is personally opposed to making contraception equally available to all groups, but he has been cited to this intent. Nor does he by any means view rural poverty with complacency; but it is possible that efforts to force decentralization might have that effect.

Those who have studied Baker's writings in recent years and who have had the privilege of his acquaintance realize that he is seeking a very different goal than the mere maintenance of population on a more or less compulsory basis. In his thinking, the willingness to share generously in the renewal of life is a critical measure of personal and social values. He perceives, more clearly than most of his contemporaries, the seeds of self-destruction in many of the current modes of contemporary urban civilization. Accordingly, he reacts in favor of a more agrarian society with enriched family inheritance of both physical and cultural goods. It may be that the final social answer to the challenge of the current trend toward population decrease will be found along quite different lines. It may be that new technology and new forms of social organization will supply the materials for a solution with much less likeness to the patterns of peasant society. But I think that Baker is right in his insight that very fundamental changes in economic organization, institutions, and attitudes must be established before reproduction in this, or any other modern, nation will be both voluntary and adequate.

From the standpoint of qualitative population trends, it is not likely that any situation could be much worse than the present, in which reproduction is partly voluntary and partly involuntary, and

in which many families with high standards of living believe that they cannot make proper provision for as many children as are, on the average, required for population replacement.

The whole situation presents a problem that cannot longer be ignored. The time is ripe for intensive study of the conditions affecting reproduction. There is no reason to suppose that our society is incapable of making adjustments that will be socially beneficial in their immediate effects and that will also provide a new basis for effective voluntary reproduction. The situation is not one of those sometimes referred to as "an emergency situation." The changes taking place are very gradual in character and intricate in their effects. May we not hope that in meeting the challenge so effectively presented in the article here cited, social action may be guided by the same painstaking and candid scholarship as that characteristic of its author? If American scholarship fails to develop a clear presentation of this situation and to explore effectively its implications and consequences, popular hysteria may give force to many ill-conceived and socially harmful measures.

EXPERIENCES OF A NURSING AND HEALTH SERVICE WITH THE NUTRITION PROBLEMS OF A COMMUNITY

by BERTHA B. EDWARDS

THE writer of this article, Miss Bertha B. Edwards, was one of the first members of the staff of the East Harlem Nursing and Health Service. Appointed as a special field worker in nutrition, she brought with her a rich background of training and experience. She had received her Bachelor of Science degree at the Oregon State College where she majored in home economics. Her nutrition work was done under Dr. Sherman and Dr. Rose at Teachers College, where she completed the requirements for the Master's degree.

Miss Edwards' article tells of her changing conception of the place of nutrition work in a public health nursing agency—the transition from a highly specialized service available for a small number of families to the permeation of all of the work of a public health nursing staff with the positive values of sound nutrition teaching. Throughout the life of the East Harlem Nursing and Health Service, Miss Edwards' contribution has been outstanding—as a field nutritionist, a supervisor of a nutrition "service," and finally as teaching-consultant to the staff.

Miss Edwards has also known and worked with hundreds of public health nursing students in the past fourteen years and with a smaller number of students from her own field whom she has introduced to family nutrition service.

Because Miss Edwards resigned from this staff in 1936, her colleagues wish to pay her this small tribute of their gratitude for her guidance and teaching, her whole-hearted identification with nurses and their problems, and the lasting inspiration of her rare personality.

GRACE L. ANDERSON, GENERAL DIRECTOR

THE East Harlem Nursing and Health Service is now in its fifteenth year of public health work in the East Harlem area of New York City. Throughout this period the nutritional status of individuals and families has been one of the health factors in which the organization has been keenly interested. A review of its experiences indicates the successive steps in the development of

a program to meet nutritional problems, and the emerging opinion as to the place nutrition work should take in a community health program.

The health service as originally planned included work in the prevention of illness and home care of the sick, maternity and infancy care, general family health supervision, and nutrition. Upon the establishment of the Service, health work in the district previously carried by The Henry Street Visiting Nurse Service was turned over to the new organization. In addition to the home care of the sick this included maternity care and a class for the discussion of the problems of the expectant mothers. The organization early recognized that the health of children after they entered school became a matter of immediate concern to individuals responsible to the school officials and the City Health Department, but that the needs of the large number of children of preschool age were not being adequately cared for by local agencies.

It was decided that the new organization would place special emphasis on developing services for the preschool child. Nurses visiting in the homes of sick persons or expectant mothers frequently discovered parents who desired information about better ways of caring for their children. These parents were ready for the educational health supervision which would tend to bridge the gap between infancy and school age.

Services were organized at the Center to strengthen the work for children of the nurses and nutritionists in the homes. These included the clinics carried by physicians, nurses, and nutritionists, and the conferences supplementing these clinics, in which the nurses and nutritionists discussed the care of their children with the parents.

The nurses and nutritionists visiting in the homes of families registered with the Service frequently noticed children who were pale and listless with dark circles under their eyes; others who were nervous, slept poorly, and had little appetite; or those who were

thin, shallow-chested, round-shouldered, with protruding abdomen and faulty posture. Many of these children had diseased tonsils. A child was seldom found without dental caries, while the condition of the teeth of the majority of preschool children was deplorable.

The pediatricians found 27 per cent of all children examined at the clinic below the average in physical appearance and development. These children were diagnosed by the pediatricians as malnourished. The question of what signs or symptoms placed a child in this group was early receiving active consideration. The nurses and nutritionists needed this information to explain the doctor's findings to the parents and to enlist their cooperation in planning for the child's improvement. Differences in the reasons given for diagnosing a child as malnourished were noted in discussing this subject with the three pediatricians. The need for arriving at a common agreement concerning the characteristics of a malnourished condition was seen to be necessary. After a thoughtful discussion of the problem by the pediatricians and the members of the staff of the East Harlem Nursing and Health Service, the following guide was accepted.

MEDICAL CLASSIFICATION OF NUTRITION

The nutrition rating of the child is, as the pediatricians tell us, largely a question of personal judgment governed by the experience of the examiner and his interpretation of the factors upon which his diagnosis is based. While a strict definition for each numerical grading is impossible, the criteria and standards adopted as a basis for rating were as follows:

Grade I. Nutrition Good

Includes those children who measure up to the best known standards in:

1. Height and weight for age
2. Color

3. Muscular tone and coordination including heart action
4. Tissue turgor (tone)
5. Posture
6. Texture of skin and hair
7. Manner of breathing, et cetera
8. Responsiveness

Grade II. Nutrition Fair

Applies to the children who in any one of the above points are distinctly below the optimal yet are far from showing a marked variation. In most cases weight for this group should not be more than 5 per cent under the ideal for the age and height.

Grade III. Nutrition Poor

Includes those children who show marked variation from the highest standards, whose weights are 10 per cent or more below the ideal for age and height, and who show marked need for improvement in all or part of the other factors.

Grade IV. Nutrition Serious

Includes those children who are emaciated and in all points plainly below the standards for Group III.

A diagnosis of nutrition III or IV places a child in the group known by the Health Service as acute, signifying the need for immediate and careful attention.

The major responsibility for the follow-up care of these children was assumed by the nutritionists on the staff. Malnourished children, "nutrition cases" for the nutritionists, corresponded to "acute illness" cases for the nurses; therefore after such defects as diseased tonsils, carious teeth, et cetera, were corrected, the undernourished child was transferred from the supervision of the nurse to that of the nutritionist. In many instances this transfer was made before the defects were cleared up, especially if the child was quite young and the parents could not be persuaded that the treatment advised was necessary.

An effort to improve the condition of the ever-enlarging number

of undernourished children led the nutritionists and nurses to search for the underlying causes of these abnormal physical manifestations. Observations in the homes and conferences with the parents enabled the staff workers to make careful analysis of situations and to gain an understanding of the influence on family well being of such factors as the family income, the ability of the parents to use the income wisely, their cultural background and ideals for family life, the health of all family members, the parents' understanding of the growth and developmental requirements of children, their plan for the cultivation of desirable health habits through the daily routine of family life, and the attitude toward and use of the social agencies of the community.

As the workers learned to recognize the relative importance of these factors, they were able to advise the parents more intelligently with regard to the care and training of their children and the management of family affairs affecting the health of those in the home.

Some children showed a marked improvement within a few months, due to modifications in their regime or the adoption of one more suited to their individual needs; others reached a satisfactory condition only after a much longer period; still others continued to be undernourished despite the parents' efforts to cultivate desirable habits with regard to food, rest, activity, sleep, sunshine, fresh air, elimination, and emotional reactions. The children whose parents were lacking in interest or understanding had little chance to overcome malnutrition which under the most favorable conditions may be of long standing among preschool children. After a period of intensive education, the families in this uncooperative group were carried less actively so that the nutritionists' time might be available to the increasing number of other families who needed their assistance.

In the intensive health work with children it was frequently noted that should a child's health become permanently restored the general health of other children in the family was also improved.

Thus, changes for the sake of one child will often bring benefit to all members of the family.

As the program of the organization developed it became increasingly apparent that greater emphasis should be placed upon the preventive phases of the service. In no other field was this realized more fully than in the nutrition work where the possibility of reducing the number of undernourished children to a minimum was so evidently dependent upon the education of the parents.

The ideal approach to the family in nutrition work was clearly through the maternity service, for, when parents are anticipating the birth of a child, they are most receptive to and appreciative of assistance that will safe-guard the health of both the mother and infant and help them to work out a sound, healthy way of living. Once the parents' interest has been obtained, they tend to desire a continuance of this health supervision of the child through infancy and childhood to school age.

The success of nutrition teaching in the maternity activities demonstrated its value in this field and encouraged the workers to consider how they might bring it into other phases of the family health program. In every home there was an urgent need for the parents to understand nutritional facts as related to the well being of all family members. Again and again statements were made such as: "Undernutrition in children should be corrected, but parents should know how to prevent this condition"; "Even well children need guidance and training"; "Why, the best homes in the district require help with their nutrition problems if the family members are to continue healthy and well."

The number of families carried by the nutritionists was only a fraction of those registered for health supervision. For many reasons, the families receiving the nutrition service were discouraging ones with which to work, so the nutritionists were eager to extend their services to families outside of this restricted group, where their teaching might be expected to prevent the development of an un-

dernourished condition. On the other hand, the nurses wished that the effectiveness of their teaching might be increased by themselves learning how to apply the essentials of nutrition to family situations. Very naturally the question arose: "Should not all health workers be familiar with the facts essential to the every day practice of good human nutrition?" If this were true it would be possible to extend at least a reasonable amount of this information to all interested parents who were reached by any of the workers.

Moreover, the attempt to separate nutrition from nursing activities was found impractical. The moment either worker entered a home her problem was not confined to a single individual but became one related to other members in the family and conditions in that household. For example, the nutritionist's work in the interest of a preschool child became of necessity a health program for the family; and the nurse's work with a father and mother for the protection of their infant's health was complete only when she had included in her plan the growth and development of the child from the standpoint of his nutritional needs, which could in no wise be considered apart from those of the parents and other children in the family.

Careful consideration of all factors encouraged the workers to try to develop an educational health service for the families in which nursing and nutrition activities were combined. Specialized nursing and nutrition ceased to function separately as nutrition work began to be incorporated in all phases of the health program. Every service in the home, each medical and nonmedical conference in the Center presented opportunities for the teaching of practical nutrition for the family; thus the integration of the services grew as the workers gained experience and the program gained recognition in the community.

In the summer of 1924, there were six nutritionists on the staff, or one nutritionist to each five nurses. In July, 1925, the nurses began to carry the nutrition work along with the other services for the

families of their respective subdistricts. As the field nutritionists completed their terms of service with the organization they were not replaced. The nutrition supervisor and her assistant assumed responsibility for the nutrition program which the nurses carried into the homes.

The nutritionist's place in the health organization thus became that of a teaching supervisor whose primary responsibility was to enrich the nurse's work with the family by assisting her to understand and use materials based upon nutritional needs. The supervisor's aim was not to make nutritionists of nurses, but rather to help them to become more effective health workers, thereby making possible better standards of living for the families registered with the organization. The nurse was selected as the home visitor because her training placed her in a position to administer to acute health needs and so gain the confidence of family members. Her entree to the home was assured and her services to the family recognized in the community.

The pooling of professional knowledge and skills and the sharing of responsibility in the activities of all health services contributed to the growth of both field staff and advisers as they worked together in the interests of the family. The contribution of the nutritionist toward the building of the family health service was made always in relation to that of the pediatrician, the mental hygienist, the case worker, the educator, and the nurse. The cooperation of parents, children, and workers was considered necessary in planning how to meet the complex health needs of individuals in the family group.

The parents' attitudes toward child care and training were more readily understood when all workers were united in their interest and work for the progress of child health and protection. The response of the parents in their efforts to guide children in the formation of desirable habits became an index to their understanding of the growth needs of the child at different ages. Food, rest, sleep, elimination, activity, sunshine, fresh air, and cod liver oil became

items of real importance to parents when explained in their relation to the growth, development, health, and adjustment of the child. The prevention of defective teeth, of faulty posture, of undernutrition and the protection of children against disease by intelligent home care, supplemented by the medical supervision of the clinic, appealed strongly to the parents.

Since 1929, about 25 per cent of families carried actively by the Health Service have had sufficient incomes (if used carefully and intelligently) to cover the essentials of a decent standard of living. Seventy-five per cent of the families have subsisted on a minimum or substandard level for a part if not for this entire period. To help the parents in their efforts to meet these conditions in the homes, the emphasis on health teaching has been placed more strongly than ever upon protection from the following angles: food selection for the family, the use of cod liver oil for infants and preschool children, sufficient rest and sleep especially for all growing children, suitable clothing, desirable daily routine for all ages, and immunization against contagious diseases.

The number of undernourished children (Table 1) has decreased from 27 per cent for the first five years of health work to 3.3 per cent for the children examined at the clinics in 1936. This fact may reasonably be interpreted as evidence of the soundness of the health teaching and the response of the parents and children to it. The understanding of how to safeguard the nutritional needs of young children during this most difficult period of economic insufficiency has given assurance not only to anxious parents, but to workers as well.

The philosophy of the East Harlem Nursing and Health Service which has grown out of its experience in health work is that every home presents nutritional problems, that all parents need help in understanding the nutritional needs of themselves and their children, that each worker entering a home should be prepared to assist the parents in obtaining and using this knowledge, and that

Year	Percentage of Children Malnourished (Grades III and IV)			Number of Children Malnourished[1] (Grades III and IV)			Total Number of Children Examined in Specified Year[2]		
	Total Under 6 Years	Infants Under 1 Year	Aged 1–5 Years	Total Under 6 Years	Infants Under 1 Year	Aged 1–5 Years	Total Under 6 Years	Infants Under 1 Year	Aged 1–5 Years
1923-1927	26	23	27	961	296	665	3,722	1,271	2,451
1929	20	20	20	316	97	219	1,534	513	1,021
1930	13	12	14	231	71	160	1,726	579	1,147
1931	13	14	12	257	84	173	1,981	603	1,378
1932	15	11	18	290	80	210	1,938	735	1,203
1933	7	9	6	165	73	92	2,372	854	1,518
1934	7.4	7	7.6	141	49	92	1,902	694	1,208
1935	5.5	4.8	5.9	103	36	67	1,870	741	1,129
1936	3.3	3.5	3.1	64	27	37	1,927	763	1,164

[1] The number of malnourished children includes all children who were rated III or IV on any examination during the specified year.

[2] Each child is counted only once in a given year, regardless of the number of examinations. Since continuous supervision is given through the preschool period, many of the same children are in the examined group from year to year.

Table 1. The incidence of malnutrition among infants and preschool children as shown by the results of pediatric examinations at the East Harlem Nursing and Health Service from 1923 through 1936.

the workers require the leadership and guidance of a well-trained nutritionist to assist them in the nutritional phases of the family services.

PREGNANCY WASTAGE IN NEW YORK CITY[1]

by DOROTHY G. WIEHL AND KATHARINE BERRY

INVESTIGATIONS of maternal deaths, of which there have been many in recent years, have shown that from one-fourth to one-third of these deaths occurred in the first six months of pregnancy, or before the fetus had become viable. There are almost no data, however, to indicate the frequency of previable terminations among all pregnancies, since registration of the previable product of pregnancy is usually not required, and if required, as in New York City, registration is known to be incomplete. Interest in the previable terminations arises not only from the fact that a record of their frequency would enable us to compute a more accurate maternal death rate but also from the fact that so little is known of the factors associated with this type of pregnancy wastage. Furthermore, the high proportion of septic deaths among the maternal deaths occurring in the previable period has led to much speculation as to the frequency of induced abortion.

There are obvious difficulties involved in obtaining complete reports on early pregnancy terminations, especially self-induced and illegal abortions. A relationship of confidence must be established by the questioner. The most complete records available are those published for clients of birth control clinics,[2] but these women are not representative of the general population since they are selected on the basis of their interest in family limitation.

The present paper reports on the outcome of pregnancies as shown by two types of special surveys made in New York City. The first survey was a house-to-house canvass to obtain records of morbidity, in which the informant was asked specifically if there were

[1] From the Milbank Memorial Fund.

[2] Kopp, Marie E.: BIRTH CONTROL IN PRACTICE. New York, McBride and Company, 1934; Pearl, Raymond: Statistical Report on the Fifth Year's Operations of the Bureau for Contraceptive Advice. Fifth Report of the Bureau for Contraceptive Advice. Baltimore, 1933, pp. 5-17; Stix, Regine K.: A Study of Pregnancy Wastage. The Milbank Memorial Fund *Quarterly*, October, 1935, xiii, No. 4, pp. 347-365.

any live or stillbirths or miscarriages during the past twelve months. For all births occurring within four months of the enumerator's visit, a follow-up visit was made by a specially trained investigator who obtained a detailed record of the current pregnancy and a careful history of all previous pregnancies for women reporting a current pregnancy. In the original survey, no effort was made to classify a reported miscarriage, but on the revisit information was sought for both the current and previous pregnancies concerning the cause of abortion and whether it was spontaneous or induced.

Description of Sample. The original survey was conducted in the winter of 1935-1936 by the United States Public Health Service in cooperation with the Works Progress Administration, and was a part of the Health Inventory or Chronic Disease Survey.[3] In the supplementary study of maternity cases, which forms the basis of this report, the Milbank Memorial Fund cooperated with the United States Public Health Service. For the original survey, the file of occupied houses and apartments in all five boroughs of New York City assembled by the Real Property Inventory was sampled by drawing every thirty-sixth domicile listed; and every family residence drawn was visited. If any residence was unoccupied at the time of the visit, another in the same neighborhood was substituted. The sample of over 48,000 families visited is believed to give a representative sample of families in New York City.

In these families, 1,030 pregnancies were reported as terminating within four months of the enumerator's visit. During 1936, 860[4] of these families were revisited by a trained nurse who had had a great deal of experience on obstetrical service and also had had experience as a field investigator. A special record of all symptoms and care during the current pregnancy was obtained from the mother who

3 Perrott, George St. J. and Holland, Dorothy F.: Chronic Disease and Gross Impairments in a Northern Industrial Community. *The Journal of the American Medical Association*, 108, No. 22, May 29, 1927, pp. 1876-1886.

4 All addresses were revisited, but 170 families had moved or refused to give further information or were not at home on repeated visits.

was also questioned in detail about her previous pregnancies. There were no maternal deaths in this series of cases; and the special data are, therefore, for living women all of whom reported a pregnancy to the enumerators of the original survey. This may bias the sample slightly, since the chances of an abortion resulting in a fatality are presumably relatively high and, as will be shown later, previable terminations were incompletely reported. The omission of some women with abortions of current occurrence may affect the past history as well as the current record since those who resort to induced abortion may have a higher rate than an average group; that is, they may tend to have repeated abortions. The record for this sample is, therefore, a minimum figure, even if we assume that all the women in the study gave a complete history.

In Table 1, the original sample is compared with the registered live births in New York City in 1935 according to borough and

Table 1. Comparison of the distribution of pregnancies in the survey sample, according to borough, color, and order of births with that for all live births registered in New York City.

Classification	Original Survey	Revisited Cases	New York City Live Births[1]
Borough of Residence—Total	100.0	100.0	100.1
Bronx	23.4	22.8	19.0
Brooklyn	38.3	37.2	38.9
Manhattan	21.5	23.9	23.7
Queens	15.6	14.7	16.0
Richmond (Staten Island)	1.2	1.4	2.5
Color—Total	100.0	100.0	100.0
White Mothers	94.0	93.7	92.9
Negro and Other Colored	6.0	6.3	7.1
Order of Birth—Total	[a]	100.0	100.0
First		30.8	40.7
Second or Third		44.1	41.9
Fourth or Fifth		15.7	11.1
Sixth or More		9.4	6.3

[1] Figures for New York City by borough and color are for 1935; data by order of birth are for 1934.
[a] Not available for women not interviewed on the follow-up survey.

Sample	Pregnancy Wastage per 100 Live Births			Number of Live Births	Number of Still-births	Number of Abortions
	Still-births Last Trimester	Abortions and Miscarriages	Total Wastage			
Registered Births, New York City	2.8	2.0	4.8	100,657	2,820	2,059
Original Survey	1.4	5.8	7.2	961	13	56
Revisited Sample:						
Current Pregnancy[1]	1.4	4.8	6.2	810	11	39
Previous Pregnancies[1]	3.0	14.1	17.1	1,302	39	184

[1] Adjusting the rates for the survey sample to the distribution of live births in New York City by order of birth changed no rate as much as 0.1.

Table 2. Outcome of pregnancies reported during a morbidity survey and of the previous pregnancies of the same women who were revisited, compared with the outcome of registered births in New York City, 1935.

color; and the revisited sample is compared with the live-birth registrations in 1934 by order of birth. From these data, it will be noted that the survey sample does not differ significantly from New York City except with respect to the distribution of pregnancies by order of birth. The survey is low in the proportion of first births and relatively high in the proportion at each succeeding order of birth; but some of the difference may be accounted for by the more complete record of previous births for women in the survey.

Frequency of Pregnancy Wastage. In the original survey among the 1,030 pregnancies reported, there were sixty-nine stillbirths and previable terminations[5] or 7.2 wastage terminations for every 100 live births. This ratio is 50 per cent higher than that for registered births in New York City in 1935, as is shown in Table 2. The number of stillbirths reported in the original survey was relatively low but abortions and miscarriages reported had a ratio to live births

[5] In classifying the data for analysis, any pregnancy loss of twenty-six weeks' gestation or over has been counted as a stillbirth; any loss under twenty-six weeks' gestation, born dead, as a previable termination. One case, born alive, was reported twenty-four weeks' gestation; it died after a few minutes, but is not included in the pregnancy loss. In this report, previable terminations include all abortions, whether spontaneous or induced, miscarriages and ectopic pregnancies; and the term abortion is used as synonymous with previable termination. Pregnancy wastage is a term adopted by a number of writers to include stillbirths and all previable terminations and will be used in this sense in this report.

that is nearly three times the ratio for registered births in New York City.

Of special interest, however, is the high rate for previable terminations among the previous pregnancies reported by the women who were revisited. For each 100 live births to these women, there had been three stillbirths and fourteen pregnancies terminated before the twenty-sixth week. It is apparent that the data obtained in the general survey are incomplete and do not represent the true incidence of abortion. This result is not at all surprising because there is a natural reluctance to discuss abortions, and the enumerators in the original survey, most of whom were men, gave no special emphasis to obtaining a complete pregnancy record since this formed a very small part of the data asked for. It is an important finding because it brings out sharply one of the difficulties encountered in studying abortions in a general population; and, furthermore, it indicates that only the histories of previous pregnancies are complete enough to warrant any analysis of factors associated with pregnancy wastage for this sample of women.

Termination by Color. There was little difference according to color in the percentages of pregnancies reported as terminating in the previable period or as stillbirths; but the number of Negro and other colored women in the survey is too small to give dependable results on this point. For both white and Negro women, the pregnancy wastage reported in the general survey was much lower than that shown by the histories of previous pregnancies, as may be seen in Table 3, and the wastage according to reproductive histories was about 15 per cent of all pregnancies.

Comparison with Other Data. The pregnancy loss reported by women in this study is lower than most estimates of wastage which have been published and it is, therefore, of interest to examine the very limited data available. In a recently published article, Pearl[6]

[6] Pearl, Raymond: Fertility and Contraception in New York and Chicago. *The Journal of the American Medical Association*, April 24, 1937, cviii, No. 17, p. 1385. Percentages

(Continued on page 234)

Color of Mother	Percentage of Total Pregnancy Terminations					Number of Pregnancies	Number of Women
	Total	Live Births	Pregnancy Wastage				
			Total	Still-births	Abor-tions		
	CURRENT PREGNANCIES OF WOMEN REVISITED						
Total	100.0	94.2	5.8	1.3	4.6	860	860
White	100.0	94.0	6.0	1.4	4.6	806	806
Negro and Other Colored	100.0	96.3	3.7	0	3.7	54	54
	HISTORIES OF PREVIOUS PREGNANCIES						
Total	100.0	85.4	14.6	2.6	12.1	1,525	595
White	100.0	85.4	14.6	2.4	12.2	1,358	549
Negro and Other Colored	100.0	85.6	14.4	3.6	10.8	167	46

Table 3. Outcome of pregnancies according to color for women reporting a pregnancy during a morbidity survey in New York City in the winter of 1935-1936.

has reported on the reproductive histories of white and Negro women in New York City who were interviewed by a physician while hospitalized for a confinement in 1931 or 1932. This affords an ideal opportunity to obtain the fullest cooperation of the patient and the histories should be unusually complete, but the proportion of current pregnancies terminated by abortion, especially illegal abortion, may be assumed to be relatively low. Pearl has classified the women in his study as primiparae and multiparae, and the pregnancy wastage reported for the multiparae is that for all pregnancies, including the current one. The total pregnancy loss, including stillbirths, experienced by white multiparae was 15 per cent, and for Negro multiparae was 14 per cent. Percentages for the multiparae in our study computed on the same basis, that is, histories and current pregnancies combined, were 12.3 and 11.7 per cent. Although the pregnancy loss reported for our sample is significantly lower than was reported in the hospital study, the general similarity of the results gives considerable assurance that they approximate conditions in this City. Even if some allowance is made for the low rate

used for comparison with our study were derived from the data given in several tables in the original article. Total pregnancies for white multiparae in the New York City sample numbered 7,686, and for Negro multiparae, 1,330.

of abortions among current pregnancies, these studies indicate a much lower pregnancy wastage than is generally assumed for New York City.

Although comparison with published data must be made with extreme caution, especially because of differences in definitions of abortions, the results for several selected groups of women may be cited. For women who had abortions (defined as terminations before the fifth month of gestation) in the Cincinnati General Hospital in the period from 1918 to 1932, Millar[7] reported the number of previous abortions and the number of full-term pregnancies. For these pregnancies to women selected on the basis of a present abortion case, the rate was 12.9 abortions per 100 pregnancies. Although stillbirths and live births delivered in the fifth to eighth months of gestation are not included, it is believed that this does not seriously affect the proportion, since the omitted pregnancies would be divided between abortions and viable terminations by the definition followed in this study. Grier[8] quotes an abortion rate of 11 per cent for pregnant women in the private practices of Dr. Danforth and Dr. Galloway in Evanston, Illinois. This rate, as indicated by Grier, presumably would not include illegal abortions, although resort to induced abortion is not necessarily ruled out because the women had consulted a physician concerning their pregnancies. For 1,131 women who attended The Bureau of Contraceptive Advice in Baltimore, Pearl[9] has reported the outcome of their 6,441 pregnancies. The "products of conception lost before term (abortion or miscarriage)" were 15.6 per cent of the total pregnancies.

The extent of natural or unavoidable pregnancy loss due to still-

[7] Millar, William M., M. D.: Human Abortion. *Human Biology*, May, 1934, 6, No. 2, pp. 271-307. The figures quoted are derived from Table 12 by deducting the present abortion cases from the total number of abortions and relating the remainder or previous abortions of these women to the 8,402 full-term deliveries reported.

[8] Grier, Robert M., M.D.: Fetal Mortality. *American Journal of Obstetrics and Gynecology*, December, 1931, xxii, No. 6, p. 890.

[9] *Op. cit.*, note 2.

births, spontaneous and therapeutic abortions has not been well established, although it is a matter of great importance. In the data quoted above, the frequency of induced abortions is not given, except in the New York City study reported on by Pearl. For his sample of white multiparae, 3.2 per cent of the pregnancies had been wilfully interrupted and 11.8 per cent had terminated in natural or unavoidable wastage. Data from the same article by Pearl indicate that 2.1 per cent of 5,840 pregnancies reported by white multiparous women in Chicago had been terminated by an illegal abortion and 11.3 per cent resulted in stillbirths, and spontaneous or therapeutic abortions. It is interesting to compare these figures with the unavoidable wastage reported by Stix[10] for 991 clients of the Birth Control Clinical Research Bureau in New York City. The reproductive histories of these women before attending the Clinic were obtained by Dr. Stix by personal interviews. The total pregnancy loss reported was very high, being 30.6 per cent of all pregnancies; and 22.1 per cent of the pregnancies had been terminated by illegal abortions. If these illegal abortions are deducted from the total pregnancies, and the wastage from other causes is related to the total pregnancies minus illegal terminations, the percentage loss for the uninterrupted pregnancies becomes 10.9. For women in our survey, 11.6 per cent of the *previous* pregnancies had resulted in stillbirths or spontaneous abortions, and 3.1 per cent were terminated by induced abortion, including the therapeutic abortions. The rates for total pregnancy loss from natural causes reported in these various studies show a surprising degree of similarity, and the wastage from stillbirths and spontaneous abortion is too consistently about 11 or 12 per cent in these studies of very different population groups to be dismissed as a mere chance phenomenon.

Data from registration of births have shown that the ratio of stillbirths to live births varies little from one community to another

[10] *Cf. Op. cit.*, note 2.

Order of Pregnancy	Total Number of Pregnancies Before the Survey Birth	Per Cent of Total Pregnancy Terminations					
		Total	Live Births	Pregnancy Wastage			
				Stillbirths	Abortions		
					Total	Spontaneous	Induced
Total	1,525	100.1	85.4	2.6	12.1	9.0	3.1
First	595	100.0	87.1	2.7	10.2	8.2	2.0
Second	354	100.0	83.9	2.3	13.8	10.2	3.7
Third	216	100.0	83.3	2.3	14.4	9.3	5.1
Fourth	128	100.0	84.4	3.9	11.7	9.4	2.3
Fifth or More	232	100.1	85.8	2.2	12.1	8.6	3.5

Table 4. Type of termination according to the order of birth for all previous pregnancies of a group of women reporting a current birth in a New York City survey in 1935-1936.

and has shown almost no decline during the past twenty years. From a special investigation by the Children's Bureau[11] of births in Baltimore in 1915, data on the outcome of 14,542 *previous* pregnancies of native white women are available. It was reported that 8.5 per cent of these had been terminated by abortion (before the seventh month of gestation) and 2.4 per cent by stillbirths, or a total pregnancy wastage of 10.9 per cent. These pregnancies occurred about twenty-five or more years ago, and probably included few induced abortions. The conclusion seems justified that the proportion of pregnancies terminated by spontaneous abortions as well as by stillbirths has been fairly constant for many years.

Pregnancy Termination by Order of Birth. The 1,525 previous pregnancies of the 595 women whose current pregnancy was the second or higher order of pregnancy are classified in Table 4 according to their order, and the outcome for each order is shown. The pregnancy wastage from abortions for the first birth to these 595 women, regardless of the number of later births, was 10.2 per

[11] Rochester, Anna: Infant Mortality. *Children's Bureau Publication No.* 119. Government Printing Office, 1923. Figures quoted are derived from Appendix Tables 187 and 188. The rates for abortions were somewhat higher in this study for the native-white women than for the foreign born, a difference which may be associated with the accuracy of reporting since many of the foreign born were either illiterate, or were unable to speak English, or both. The stillbirth rates were similar.

Parity in Survey of Women Included at Each Order	Pregnancy Order for Previous Births	Number of Pregnancies	Per Cent of Total Pregnancy Terminations					
					Type of Pregnancy Wastage			
						Abortions		
			Total	Live Births	Still-births	Total	Spontaneous	Induced
2nd or 3rd	First	379	100.0	86.0	2.4	11.6	9.2	2.4
3rd or 4th	Second	227	100.1	81.1	3.1	15.9	11.9	4.0
4th or 5th	Third	135	100.0	80.0	0.7	19.3	11.1	8.2
5th or 6th	Fourth	74	100.1	75.7	6.8	17.6	13.5	4.1
6th or Higher	Fifth or Higher	135	100.1	83.0	3.0	14.1	10.4	3.7
Total for Two Previous Pregnancies		950	99.9	82.7	2.7	14.5	10.6	3.9

Table 5. Type of termination according to the order of birth for the last and next to last pregnancies preceding the current birth reported in the original survey in New York City in 1935-1936.

cent and somewhat lower than for subsequent pregnancies. For second and higher orders of pregnancy no real difference in the percentage of pregnancies terminated by stillbirths or abortions is shown. This result was somewhat surprising because the reproductive histories reported on by Stix[12] showed a marked increase in abortions with advancing years of married life and records for birth control clinic patients in New York City reported on by Kopp[13] and in Baltimore[14] also indicated a rise in wastage as order of birth advances. Clients of birth control clinics are a highly selected group because of their definite interest in family limitation, and there is evidence to indicate that when a pregnancy results as a failure in contraception, a high percentage of women resort to illegal abortion.[15] In fact, the data given by Stix show that, if illegal abortions are excluded, there was no significant rise in pregnancy wastage with advancing years of married life. Our sample would indicate that in an average group, women experiencing a high order

[12] *Cf. op. cit.*

[13] Kopp, *op. cit.*

[14] Pearl, note 2.

[15] *Cf.* Stix, *op. cit.*, and Pearl, note 6.

of pregnancy were no more likely to have a previable termination than were women experiencing their second or third pregnancy.

The previous pregnancies of any specific order for the group as a whole, obviously, occurred over a considerable period of years. Furthermore, the early pregnancies to women with large families and still bearing children not only represent births many years previous but also are births to women selected into the study because of their large families. Terminations of pregnancies occurring in a more restricted time period are shown in Table 5, in which only the last and next to last pregnancy before the current survey pregnancy are counted. In this table and in Figure 1, the outcome of first pregnancies of women whose total births, including that in the current survey, numbered only two or three is compared with the outcome of second pregnancies of women whose total births numbered three or four. When the time range is limited[16] by considering only the

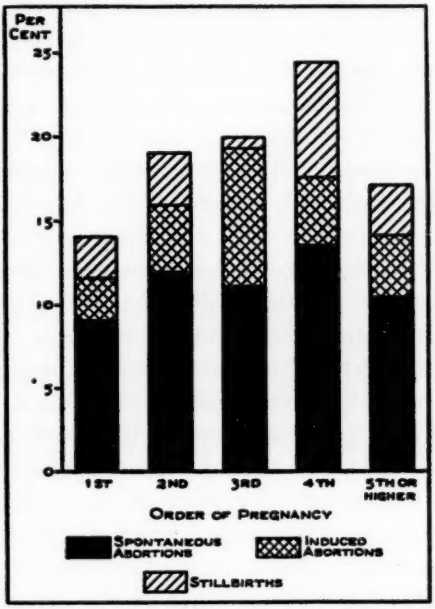

Fig. 1. Order of pregnancy and pregnancy wastage for the two most recent pregnancies prior to the birth reported in the morbidity survey in New York City, 1935-1936.

[16] It is, of course, possible that a long interval of time may have elapsed between the present pregnancy and the preceding one, but this is rare and the time period during which the two preceding pregnancies would occur seldom would exceed five or six years. It will be noted that the abortion rate for these recent pregnancies is higher than that for *all* previous pregnancies; this may reflect the influence of an upward trend in abortions, but

(Continued on page 240)

preceding birth and the one before that for each woman, there is greater variation in the frequency of abortions according to order of birth.

For these recent pregnancies, the frequency of abortion rose from 11.6 per cent of first pregnancies to 19.3 per cent of third pregnancies, giving a difference of 7.7 per cent which is definitely significant since the chances that it would occur on the basis of random sampling are less than three in a hundred. The frequency of abortions declined slightly for the fourth pregnancies, and among pregnancies of the fifth or higher order, the percentage dropped to 14.0.

Induced abortions showed a greater variation with order of birth than the spontaneous abortions and accounted for most of the differences observed in the abortion rates by order of birth. The average induced abortion rate for the two recent previous pregnancies was 3.9 per cent; among first pregnancies 2.4 per cent were interrupted by some type of induction but among third pregnancies 8.2 per cent were interrupted. After the third pregnancy, the induced abortion rate declined to about 4 per cent.

Income and Pregnancy Wastage. The relation of income and economic strain in the family to the frequency of abortion and other pregnancy wastage is of considerable interest. At the time of the original survey, each family was classified according to its total income for the past year, but no information was obtained concerning changes in income. The income data refer, therefore, to the year 1935 and many families no doubt had had higher incomes for some years during which the previous pregnancies occurred. On the other hand, it is probable that very few families with relatively high incomes in 1935 had received lower incomes in preceding years. Table 6 shows the distribution of pregnancies according to types of termination for women of different income groups.[17]

since the previous pregnancies at an earlier period are for a selected group of women and since abortions occuring in this earlier period are more apt to be forgotten, we cannot be certain that an increase has occurred.

[17] All families with $2,000 or more have been grouped together in this report, although

(Continued on page 241)

Income Classification in 1935	Total Pregnancies	Percentage of Total Pregnancy Terminations					
		Total	Live Births	Pregnancy Wastage			
				Stillbirths	Abortions		
					Total	Spontaneous	Induced
	TOTAL PREVIOUS PREGNANCIES						
All Incomes[1]	1,525	100.1	85.4	2.6	12.1	9.0	3.1
Relief	555	100.0	87.4	2.7	9.9	7.0	2.9
Under $1,000	184	100.0	83.2	2.2	14.6	9.2	5.4
$1,000-1,499.99	359	100.0	86.9	2.2	10.9	7.8	3.1
$1,500-1,999.99	221	100.0	82.8	3.2	14.0	11.3	2.7
$2,000 or More	184	100.0	84.2	2.2	13.6	11.4	2.2
	LAST AND NEXT TO LAST PREGNANCIES PRIOR TO PRESENT PREGNANCY						
All Incomes[2]	950	99.9	82.7	2.7	14.5	10.6	3.9
Relief	270	100.1	85.6	2.6	11.9	8.1	3.7
Under $1,000	136	100.0	78.7	2.2	19.1	11.0	8.1
$1,000-1,499.99	238	100.1	82.8	3.4	13.9	10.1	3.8
$1,500-1,999.99	161	100.0	82.0	3.7	14.3	11.8	2.5
$2,000 or More	129	100.0	83.7	1.6	14.7	12.4	2.3

[1] Includes twenty-two pregnancies for women whose income was not reported.
[2] Includes sixteen pregnancies for women whose income was not reported.

Table 6. Family income and pregnancy wastage according to pregnancy histories obtained from women reporting a present pregnancy in a survey of families in New York City in 1935-1936.

The proportions of all previous pregnancies which terminated in stillbirths or in abortions did not vary significantly or consistently according to family income. The same indication is obtained when the comparison of income groups is based on the two most recent previous pregnancies, as may be seen in Fig. 2, except for a striking difference between relief families and the nonrelief families of lowest income. This is in agreement with the findings reported by Pearl[18] who found no correlation between income and abortions for women attending the Baltimore Bureau of Contraceptive Advice, and with the results for native-white mothers in the Children's Bureau study in Baltimore in 1915.

The relatively low proportion of abortions (11.9 per cent) among

the original records classified them in more detail. The number of births recorded for the higher income groups was too small to permit more detailed tabulation.

[18] Pearl, Raymond: Some Data on Fertility and Economic Status. *Human Biology*, 4, No. 4, December 1932, pp. 525-553.

the recent pregnancies of women in families on relief, and the high proportion (19.1 per cent) for women in families with an annual income of less than $1,000 present an interesting contrast within a group that would be classed as the poorest families in the study.[19] It has been shown that the loss from abortion was relatively low among the pregnancies of high order, and we should expect births of high order to occur most frequently in low-income families which, in turn, are forced by inability to provide for a large family to seek some type of public assistance. If the spontaneous and induced abortion rates for these two income groups are considered, we find that only the difference between the rates for induced abortions is significant. In families with less than $1,000 annual income, more children would be a serious strain on the family budget and the relatively high rate of induced abortions apparently reflects a desire on the part of these families to avoid this added economic burden. Those who fail to limit the size of their families by some means are selected into the relief group.

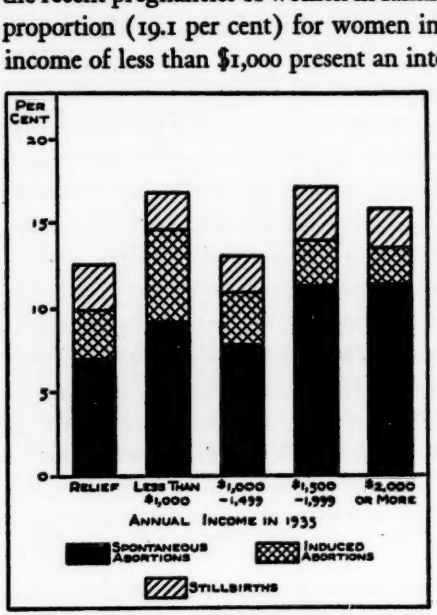

Fig. 2. Family income and pregnancy wastage for the two most recent pregnancies prior to the birth reported in the morbidity survey in New York City, 1935-1936.

Although the pregnancy loss from all types of abortion varied only slightly for families not on relief, an interesting difference is

[19] The chances are about 5 in 100 that the observed difference in the rate for abortions for the relief group and the rate for the group with annual incomes of less than $1,000 would arise from independent samplings of the same universe.

indicated for the reported frequency of spontaneous and induced abortions. Thus, spontaneous abortions tend to increase with income and induced abortions to decrease. However, when only the two most recent previous pregnancies for each woman are counted, the increase in spontaneous abortions is diminished, and the decline in induced abortions as income increases becomes more marked. There probably was some tendency for women in the higher income groups to be less frank in reporting that an abortion had been induced, but it also seems likely that fewer unwanted pregnancies occurred and that, therefore, fewer were interrupted by an induced abortion.

The number of abortions per 100 women of different incomes shows a different picture from that for the incidence among pregnancies experienced. For families on relief, there were thirty-six abortions reported per 100 women, higher than for any other income group, as is shown in Table 7. Because of the larger number of pregnancies for the women in relief families, they were more frequently exposed to the chance of abortion and, in spite of the lower incidence per 100 pregnancies, they experienced the largest

Table 7. Pregnancy wastage per 100 women in different income groups in New York City according to history of pregnancies prior to the pregnancy at time of interview in 1936.

Income Classification in 1935	Number of Women	Number of Previous Pregnancies	Pregnancy Terminations According to Type per 100 Women					
			All Pregnancies	Live Births	Pregnancy Wastage			
					Stillbirths	Abortions		
						Total	Spontaneous	Induced
All Incomes[1]	595	1,525	256.3	218.8	6.6	30.9	23.0	7.9
Relief	152	555	365.1	319.1	9.9	36.2	25.7	10.5
Under $1,000	83	184	221.7	184.3	4.8	32.5	20.5	12.0
$1,000-1,499.99	158	359	227.2	197.5	5.1	24.7	17.7	7.0
$1,500-1,999.99	106	221	208.5	172.6	6.6	29.2	23.6	5.7
$2,000 or More	84	184	219.0	184.5	4.8	29.8	25.0	4.8

[1] Includes twelve women with twenty-two pregnancies whose income was not reported.

number of abortions. Among women in the upper income groups, there were thirty abortions of all types per 100 women. The average rate for women in all income groups was thirty-one per 100 women; and 23 per cent of the 595 women for whom a previous history was obtained had had one or more abortions.

Terminations by Income and Order of Birth. The two most recent pregnancies, exclusive of the current or survey pregnancy, to each multiparous woman which were shown by order of birth in Table 5 are classified according to family income in Table 8. The number of cases in many of these subclasses becomes too small to be of definite significance, but some interesting indications are afforded. For women on relief and also for those with incomes of $1,500 or more, there was no significant difference in the incidence of abortions according to order of pregnancy, and for each specific order of birth there was no significant difference in the abortion rate for these two income groups. This is clearly shown in Figure 3. In the low-income families not receiving aid, the incidence of abortion rose from 9 per cent among first pregnancies to 31 per cent for third and fourth pregnancies, but women having a fifth or higher order of pregnancy aborted only at the rate of 13 per cent.

Table 8. Pregnancy wastage by order of birth and family income for the two preceding pregnancies of women interviewed following a present pregnancy in New York City in 1936.

Order of Birth	Total Number of Pregnancies				Per Cent of Total Pregnancies Terminated as Stillbirths				Per Cent of Total Pregnancies Terminated by Abortion			
		Income Groups				Income Groups				Income Groups		
	All Incomes	Relief	Under $1,500	$1,500 or Over	All Incomes	Relief	Under $1,500	$1,500 Or over	All Incomes	Relief	Under $1,500	$1,500 or Over
Total	950[1]	270	374	290	2.7	2.6	2.9	2.8	14.5	11.9	15.8	14.5
Total Adjusted[2]					2.8	2.5	3.0	2.6	14.5	12.0	16.6	14.4
First	379	60	172	138	2.4	1.7	1.7	3.6	11.6	11.7	8.7	15.2
Second	227	54	93	77	3.1	3.7	3.2	2.6	15.9	13.0	18.3	14.3
Third and Fourth	209	86	70	51	2.9	2.3	4.3	2.0	18.7	11.6	31.4	11.8
Fifth or Higher	135	70	39	24	3.0	2.9	5.1	0	14.1	11.4	12.8	16.7

[1] Includes sixteen pregnancies for women whose income was not reported.
[2] Adjusted to the percentage distribution of live births in New York City in 1934 by order of birth.

The abortion rate for pregnancies of the third and fourth order combined in this low-income group was significantly higher[20] than the rates at other orders of pregnancy and also significantly higher than the abortion rate at the same orders of pregnancy for the other income groups. Apparently, within this low-income group, there are a considerable number of women who have resorted to illegal abortion as a method of family limitation, since it has been noted that differences in abortion rates according to parity and according to income were found almost entirely in the reported induced abortions.

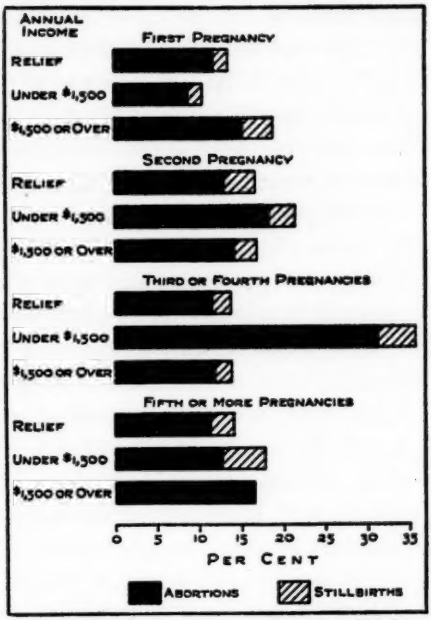

Fig. 3. Pregnancy wastage by order of birth and family income for the two most recent pregnancies prior to the birth reported in the morbidity survey in New York City, 1935-1936.

SUMMARY

The extent of pregnancy wastage in New York City was investigated by having a nurse interview a series of women to obtain detailed records of their entire reproductive history. The 860 women visited in their

[20] Differences and the probable error of the differences between abortion rates for selected groups showing the more significant differences were:

1. Order of birth differences for women in families with annual incomes under $1,500:

Third and fourth pregnancy and first pregnancy	22.7 ± 3.44
Third and fourth pregnancy and second pregnancy	13.1 ± 4.55
Third and fourth pregnancy and fifth or higher pregnancy	18.6 ± 5.82
First and second pregnancies	9.6 ± 2.83

2. Income group differences for pregnancies of third and fourth order:

Under $1,500 and relief	19.8 ± 4.38
Under $1,500 and $1,500 or more	19.6 ± 5.23

homes in 1936 had reported a recent pregnancy termination of some type when canvassed in the course of the Chronic Disease Survey conducted by the United States Public Health Service. Since these recent or current survey pregnancies included relatively few previable terminations, the major analysis is restricted to the outcome of 1,595 previous pregnancies of the 595 multiparous women, of whom 549 were white and forty-six were Negro or other colored. Since the latter were so few and showed no significant difference from the white group, results for the total sample were presented.

1. Eighty-five per cent of all previous pregnancies terminated in live births, 2.6 per cent in stillbirths, and 12.1 per cent in abortions, including 3.1 per cent which were reported as induced. Slightly higher abortion rates were indicated when only the two pregnancies which had most recently preceded the survey pregnancy were considered, in order to limit the time range covered in the histories and to give equal weight to the individual women. On this basis, 83 per cent of pregnancies resulted in live births, 2.7 per cent in stillbirths, and 14.5 per cent in abortions, including 3.9 per cent which were induced. Internal evidence suggests that some induced abortions were reported as spontaneous and that the proportion of induced terminations should be slightly higher.

These abortion rates are much lower than most estimates which have been made for New York City. Although there is some selection in this sample toward a minimum rate, it is believed that the records of women definitely interested in family limitation and attending birth control clinics have led to an estimate for abortions which is excessively high.

2. Data from several studies of pregnancy wastage were reviewed and it was suggested that a fairly constant proportion of pregnancies results in stillbirths or spontaneous abortions, probably 11 or 12 per cent.

3. Loss from abortions was somewhat lower among first pregnancies than among those of higher orders, but there was no con-

sistent tendency for the abortion rate to increase as order of pregnancy advanced. The highest abortion rate was reported for the third pregnancies and the excess was almost entirely accounted for by a high rate of induced abortions.

4. Differences in the rates for spontaneous abortion according to family income in 1935 were not significant, but the women in families with an annual income of less than $1,000 reported a higher percentage of pregnancies terminated by induced abortion than any other income group. There was a slight tendency for spontaneous abortions to increase as income increased and a more definite tendency for induced abortions to decrease as income increased.

5. A very high abortion rate (31 per cent) for third and fourth pregnancies of women in the low-income group was noted. Only in the low-income nonrelief group did the pregnancy loss vary significantly by order of birth.

IMPAIRMENTS IN A RURAL POPULATION[1]

by RALPH E. WHEELER, M. D.

CHRONIC diseases and defects have long been the subject of careful clinical study and much has been learned about the diagnosis, treatment, and prevention of specific conditions in this way. However, the question of the extent to which chronic illnesses and defects occur in populations—the magnitude of the problem they offer—has been studied much less completely and only recently. One approach to the problem has been by house-to-house canvass in representative areas, recording illnesses reported for household inmates. This technique of investigation has been of very definite usefulness in indicating the extent of the chronic disease problem. However, chronic ailments often have an insidious onset and their existence may not be recognized by an individual (or the symptoms may be wrongly interpreted); furthermore, many people subconsciously adjust to limitations even when these are of a high order. Such surveys, therefore, tend to give minimal figures for the prevalence of many conditions.

With a view to obtaining more precise data on the prevalence of impairments, a clinic was established for the performance of medical examinations in an area where the population was also being studied by the house-to-house canvass type of morbidity observation. The medical examinations and morbidity survey, together with certain special epidemiological studies, were planned and directed by the late Edgar Sydenstricker for the purpose of making an intensive investigation of rural health conditions. The area chosen was a rural one in Cattaraugus County in western New

[1] The study was carried out by the Milbank Memorial Fund with the very cordial cooperation of the Cattaraugus County Department of Health and of the Office of Statistical Investigations of the United States Public Health Service. Dr. John H. Korns, director of the Cattaraugus County Health Department's Bureau of Tuberculosis, and Dr. J. Herman Wylie, his assistant, performed the early examinations. Dr. Korns read all X-rays taken at the clinic. Laboratory examinations were performed at the County Laboratory under the direction of Dr. Edmund K. Kline.

York State, with a population of 5,000 persons. About two-thirds of this population lived on farms and the remainder lived in small villages and hamlets.[2]

The medical examination offered at the clinic consisted of: (1) a brief record of the personal and family history; (2) a careful routine physical examination with X-ray of the chest; (3) a routine laboratory examination of a urine specimen; and (4) a tuberculin test.

The first three of these, history taking, physical examination, and laboratory examination, are basic procedures in obtaining any medical diagnosis, but it is not always realized that some of the resulting findings must be further interpreted in the light of special examination, subsequent observation, or therapeutic test before a definite diagnosis can be made. These latter procedures are open to the family physician who sees his patients periodically, but are not available to the research clinic examiner anxious to avoid disturbing the relationships between practitioner and patient. In some cases the consent of the family physician and of the patient was obtained for a study of doubtful conditions by a consultant in a special field, but this was not always possible. The difficulty of identifying with certainty all conditions, manifested at one clinic examination, constitutes an important limitation of this type of morbidity study. Backaches; obscure nervous system disorders; and a number of abdominal findings, including diseases of women, were found especially difficult to classify accurately, as special X-rays, and pelvic and rectal examinations were not done routinely. No attempt was made to identify latent syphilis but wherever the examination gave some reason for suspecting the disease, a blood specimen was taken.

The method of securing a random sample of the population for examination requires some explanation. Invitations to attend the

[2] The area is described in more detail in "The Prevalence of Tuberculous Infection in a Rural Community in New York State" by Edgar Sydenstricker and Jean Downes. The Milbank Memorial Fund *Quarterly Bulletin*, July, 1933, xi, No. 3, pp. 221-232.

clinic were issued by field workers during the course of their house-to-house visiting, and every effort was made to have whole families come to the clinic for a health examination. As the field workers visited every family in an area containing some five thousand persons, it was felt that this method eventually would give everyone notice of the clinic. It was, however, realized that the sample might none the less be biased because persons with reason to be disturbed about their health might accept more readily than others. A careful record was therefore kept of the possible selective factors in issuing or accepting these invitations. Of 1,025 persons attending after invitation there was reason to believe that 749 did so simply to take advantage of the opportunity for a health examination and that the remaining 276 accepted with alacrity because of the opportunity of securing a free medical opinion on some real or supposed ailment. These two groups constitute, respectively, the true sample and the conditional sample. There were, in addition, two other groups of persons examined at the clinic, those who applied for examination without waiting for an invitation and those referred by local physicians. There were 168 in the former group and thirty-one in the latter. In all, 1,224 individuals, or nearly a quarter of the population, were examined.

The present note describes certain general aspects of the clinic's findings with special reference to prevalence of impairments in this representative rural population. The general aspects to be considered are the number of impairments found, the types of care which seemed indicated, and the extent to which impairments should receive medical attention.

I. THE NUMBER OF IMPAIRMENTS

The number of impairments discovered in any form of medical examination depends upon two things, the first being the type of examination performed and the second the type of finding which the examiner considers an impairment. The first of these has been

outlined above; the second requires some definition. As here used, an impairment is defined as "a chronic ailment or physical or functional defect revealed by a routine medical examination." A careful clinical check-up was made and certain conditions not usually considered to be impairments were included in the totals. Thus, a history of chronic or intermittent joint pain *was* counted, regardless of negative physical findings, and chronic constipation of a marked degree or requiring periodic resort to laxatives was also included. Distance vision of 20/30 or worse in one or both eyes was considered sufficient to count as an impairment, and one or more cavities in teeth were similarly counted. In this connection, it may be noted that a certain number of persons were given a dental examination in conjunction with the medical examination. The number of cavities found by the dentist did not differ markedly from that found at the clinic, but other conditions, such as impaction and malocclusion, were discovered. While it was heartening to have this verification of the cavity enumeration, the experience convinced the medical examiner that examinations by specialists would detect far more defects than did the routine medical examination alone. Had it been possible to have studies made simultaneously by an ophthalmologist, a still greater number of eye defects would likewise have been found, so that the findings here reported may be considered as understatements.

Although the definition of the term "impairment" seems broad enough in its scope to make the subsequent portrayal of hardly more than academic interest, it may be observed that in practice it has been restricted in certain directions, the first being that most impairments entered on the record as of slight degree have usually been disregarded. It would, of course, be unfortunate to fail to take note of a "slight cancerous growth" or of some other early lesion of very definite importance, but in general only conditions of "moderate" or "marked" degree have been counted. Second, minor conditions recorded as "doubtful" have usually been disregarded. It

has already been noted that not infrequently the examiner was uncertain about several conditions, and the omission of such things at least qualifies the reported findings as minimal ones.

In any study involving large numbers of persons, a certain amount of acute illness invariably passes under review. Surprisingly few truly acute conditions were encountered, however, although not a few acute relapses of essentially chronic conditions were seen. In general, findings of really acute nature, such as common colds, transitory rashes, and the like, have been omitted.

The total number of impairments detected and the number of persons examined are shown in Table 1, together with the average number of impairments per person. As definite differences were found in these respects in the four groups of persons with various motives for being examined, these have been given separately. Averages adjusted for age and sex have also been given because of definite differences in the age and sex distribution of the major groups. It is evident that motives impelling individuals to undergo examination determine to no small extent the number of defects found. This result was not entirely anticipated, for it is to be expected that the *severity* of ailments or defects rather than the *number* of these might impel people to undergo examination. It is, of course, not impossible that there may be a relationship between the number of impairments and the severity of one or more of them.

Table 1. Total and average number of impairments detected on examination in four groups of persons in rural Cattaraugus County.

	True Sample	Conditioned Sample	Applied for Examination	Referred by Physicians	All Persons
Number of Impairments	2,037	1,056	712	140	3,945
Number Examined	749	276	168	31	1,224
Average Number of Impairments per Person	2.7	3.8	4.2	4.5	3.2
Average Adjusted for Age and Sex	2.8	3.4	3.5	a	3.1

[a] Limited numbers prevent adjustment in this category.

Such a relationship, for example, has long been suspected on clinical grounds in certain cases between the condition of teeth, tonsils, or other infectious foci and that of joints. Possibly the most reasonable explanation is that, upon one examination of a patient, it is not always possible to distinguish between causes and effects, so that cause and effect or effects have been entered as separate findings. An effort was made to avoid duplication in this respect but the line cannot always be drawn clearly.

Whatever may be the explanation of the phenomenon noted in Table 1, it is clear that some degree of selection must be made from the data offered by the clinic where, as in this case, it is desired to describe conditions in a rural population. It seems unlikely that, if it were possible to secure the examination of all persons in a rural area, 61 per cent would welcome examination simply as a check-up on their physical status, 22 per cent would be wanting to see a doctor, 14 per cent would have made an appointment to see one, and 3 per cent would be caught in the interval between seeing their practitioner and seeing a consultant recommended by him. These are, in round numbers, the percentages shown by the clinic's various groups. A conservative choice would undoubtedly be the group called the "true sample," even though from this group has been eliminated a certain number with more or less extensive impairment which would normally fall within a random sample.

During the first two of the four years of clinic operation, examinations were conducted by Dr. John H. Korns with the assistance of Dr. J. H. Wylie. During the last two years, examinations were performed by the author quite independently but with the same record form. Adjusted average numbers of defects for these two wholly distinct periods of clinic operation were, respectively, 2.80 and 2.93. Other evidence indicates that there was agreement upon many of the more detailed aspects of impairments as well as upon the number found.

The average number of impairments bears a very definite rela-

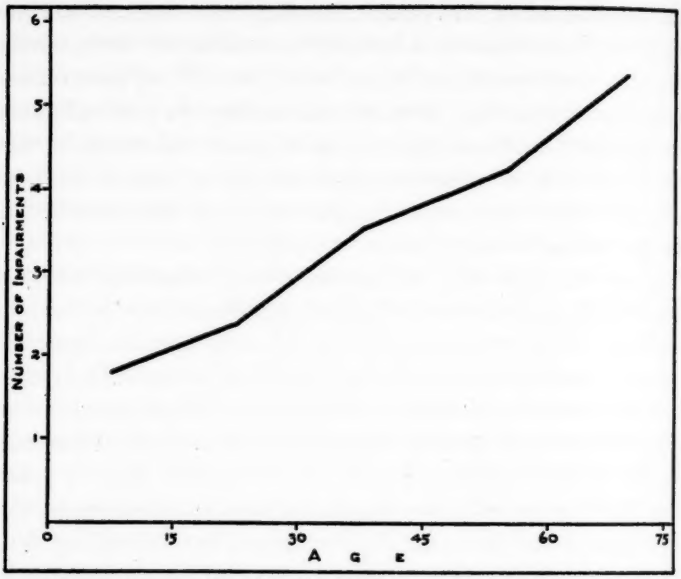

Fig. 1. Average number of impairments per person, at various ages in the true sample.

tionship to age, as shown in Figure 1, for the true sample. The averages at each age have been adjusted for sex, as a few more females were examined than males, but the resulting changes were very slight.

It might be suspected, from the partial list of conditions which were counted as impairments, that relatively few persons were found to be wholly normal, and this suspicion is correct. In the true sample only eighty-one persons, or 10.8 per cent, were found to be free of impairments, the great majority being in the youngest age group. On the other hand, eighty persons, or 10.7 per cent, had six or more impairments, the majority being in the older age groups.

It can be seen that impairments are very prevalent in this typical rural population. It is true that a fairly broad definition of impairment has been adopted. Civilization, it may be argued, has reduced

the need for the organic efficiency demanded of the frontiersman or the savage whose life might be forfeited by the lack of keen vision, a steady hand, or physical endurance. But civilization has its own pitfalls for the individual and makes its own tests of physical efficiency which are the less appreciated or understood because the effects may be less immediate or less drastic. The attention of the school child may wander or the job of the wage-earner may be lost because of minor and often correctible defects of vision or hearing, not to mention the significance of impairments in men under the special and often changing conditions of military service.

II. TYPES OF CARE NEEDED

A somewhat closer view of the question of the prevalence of impairments is obtained by noting the proportion of persons who could benefit by medical care or observation of various types. Before taking up the types of care needed in detail, however, it may be of interest to note that in the true sample 19.6 per cent,[3] or very nearly one in five, were considered to require no medical care at all. This figure is somewhat higher than the 10.8 per cent found to be free of impairments because there are a certain number of persons with conditions for which medicine—in the broadest sense of the term—can do little. The remaining 80.4 per cent of individuals were found to have conditions for which some form of care would be of benefit.

The problem of determining the particular form of care has been approached from the point of view of the medical internist rather than from that of a more restricted specialist, and an effort has been made to settle the allocation of each condition in its relation to other known facts in the individual case. Thus, where surgery might be recommended for the treatment of inguinal hernia in a young and active man, it is certainly not indicated for that condition in an aged and sedentary one. A few general rules have

[3] This is a percentage standardized for age and sex to a rural population.

been applied, however. The removal of tonsils or the correction of a deviated septum has not been recommended unless the defect is marked. Children under two years of age and pregnant women, it was felt, should be under pediatric and obstetric observation, respectively.

If it be charged that such inclusions as these last put the whole question on a quite academic basis, the reply may be made that this basis is precisely the one needed. Many careful field surveys, such as that of the Committee on the Costs of Medical Care, have studied the question on the basis of conditions reported by household inmates, but very few have explored factually the extent to which a population actually requires care, which is quite a different phase of the problem.

The implication, in assigning individuals to various forms of special care in this way, is not that the family practitioner is incapable of supplying the type of care needed but rather that he supplies it in the specified field. It would, of course, be impossible to state how many of these were actually in need of specialists' attention, for there is a tendency among rural practitioners to develop one or more specialties as a sort of hobby, and many of the fields were more or less covered within any given practitioner's practice. There was, however, very little local consultation so that patients requiring special care not supplied by their own practitioner were often required, out of consideration for their family physician, to do without it or to go some distance for it.

There is also no implication that these persons were not already receiving attention. Certain of them undoubtedly were receiving it, and others must have been advised to take treatment but for various reasons failed to comply with the advice. This last would, of course, be difficult even to estimate.

Table 2 gives the percentage of all persons in the true sample from whose examination care or observation of various types was deemed advisable. The only percentage which, it is felt, may be

Type of Care	Persons Requiring Specified Type of Care	Per Cent in Need of Specified Type of Care	
		Crude	Adjusted[1]
General Medical	213	28.4	30.3
General Surgical	33	4.4	4.8
Dental	328	43.8	44.5
Ophthalmic	214	28.6	29.9
Ear, Nose, and Throat	120	16.0	16.7
Pediatric	38	5.1	4.2
Dermatologic	30	4.0	4.1
Orthopedic	30	4.0	3.9
Gynecologic and Obstetric	17	2.3	2.2
Other	15	2.0	2.0

[1]Adjusted for age and sex to a rural population.

Table 2. Crude and adjusted percentages of 749 persons in the true sample for whom care or observation of the specified type was considered advisable.

unduly high is that in the medical group. Here, owing to the limitations of diagnosis, a certain number of conditions had to be listed as requiring further observation. Had it been possible to provide for subsequent examinations and further laboratory tests, a limited number of persons could undoubtedly have been found free of the particular defect. It may be considered that surgery has been slighted by the internist in Table 2, but here the limitations of one-visit diagnosis may have worked in the reverse direction, for obscure abdominal conditions that may require surgical treatment cannot be accurately diagnosed on routine examination. In this and in the other specialties, the percentages would unquestionably have been higher had the examinations been conducted by the specialists themselves. This is perhaps even more true of gynecology and orthopedics than of general surgery.

Because they are less representative of conditions in a general population, little need be said of the corresponding rates for the three other groups of clinic examinees. The chief differences are to be found in the total number for whom some form of care is recommended. This rises as high as 90 per cent in one group. Smaller but no less significant increases are found in the percentages requiring

medical, gynecologic, and dermatologic care, while rates for the dental; ophthalmic; and ear, nose, and throat specialties are rather remarkably constant. This confirms the examiner's impression that diagnosis was seldom sought along these special lines, however frequently it might be needed. In the case of dental impairments, of course, a recognized agency exists in the local dentists for advice and treatment, but in the case of the other specialties the question arises of whether individuals had been disappointed in their efforts to get assistance from medical practitioners along these lines or whether defects in these fields are more readily tolerated.

III. THE SIGNIFICANCE OF IMPAIRMENTS

Hitherto, no mention has been made of the relative importance of impairments, those of comparatively little significance being enumerated and considered worthy of special care along with those of genuine importance to the individual or to society. There is a very good reason for this, for the comparative rating of the significance of defects is not easy. A logical basis, for example, might be the discomfort or inconvenience caused by an impairment. This is an important consideration for the patient as well as for the physician whose examination starts with the "chief complaint," and is often largely conditioned by it. However, comfort and convenience are highly subjective phenomena and some people are more perturbed by an unsightly nose or a double chin than by angina pectoris. A second and still more important consideration from the physician's point of view, however, is the ultimate significance of an impairment to the patient. High blood pressure or diabetes, for example, may cause relatively little discomfort but may be of very definite prognostic importance. A third criterion might be the extent to which an impairment interferes with efficiency by causing total or partial disability. This criterion is a very important one from the point of view of the patient, of the physician, and of society in general, but it has a number of limitations even when one

overlooks the fact that disability is subjectively conditioned more often than is realized. Its chief disadvantage is that efficiency is so largely determined by occupation. Thus, the urban postman would be incapacitated by a degree of foot strain that would hardly be noticed by a mail carrier in the R.F.D. A fourth criterion might be the extent to which an impairment jeopardizes the health or safety of others, as, for example, tuberculosis. There is an occupational angle here also, for color blindness, which is a relatively minor defect, has been recognized as a major one in not a few occupations.

It is evident that no one method of defining an impairment will be sufficiently inclusive to offer a useful basis for study, and that all taken together form too inclusive a basis. The interests of conventional medical practice and of conventional public health practice, with their respective orientations toward the patient and toward the community, are served by somewhat different combinations of these criteria, although with broader concepts of what constitutes individual health on the one hand and community health on the other the distinctions should disappear.

The clinic provided a possible solution to the question of the significance of impairments which, with minor changes, could be applied here. The examiners were authorized to pay for one visit to the family physician on the part of any patient found to have an impairment worthy of medical attention. As funds for this purpose were limited, these slips were issued primarily where remediable impairments were found, and where these were of a more than minor nature. As local physicians did very little corrective work on refractive errors of eyes or on teeth, and as they practiced no major surgery, impairments in these fields had to be of a more definitely handicapping nature and were referred to the family doctor only in the hope that he would again refer them to the proper practitioner. The slips were not issued under certain special conditions so that the actual number receiving slips cannot be counted, but the conditions for issuing them were known, and 40.0 per cent of those

examined in the true sample were found to have been entitled to them. It must be added that in this percentage are included such individuals as presented conditions whose significance could only be determined by types of observation not possible at the clinic. There were fifty-three individuals with conditions of this sort in the true sample, the adjusted percentage being 6.8. The rates for persons in the other groups were considerably higher, but here it is felt that the likelihood of receiving one of these slips may have conditioned clinic attendance.

Viewing the above figure for the true sample from another angle, there were 60 per cent of individuals for whom medical attention, if needed at all, might be considered in the nature of a luxury. This may be compared with, roughly, 20 per cent found to require no medical care of any sort and 10 per cent found to have no impairments whatsoever.

DISCUSSION

It has been shown that impairments, as defined above, are very prevalent in this rural population. There is no reason to believe that this is a purely local finding, as the area selected for study was a highly typical one. Because the number of identified impairments increases rapidly and consistently with age, it might be inferred that very little is being done to prevent their development or, when such is possible, to secure their correction. No record was kept of the number under medical care for impairments at the time of the clinic visit, and it is quite true that the number found at each age would have been higher but for medical treatments and corrections. The proportion of individuals whose impairments could be benefited by medical, dental, or other special forms of care was found to be in the neighborhood of 80 per cent, while that of individuals who were regarded as needing some form of advice or treatment from their physician for an impairment of more than moderate degree was in the neighborhood of 40 per cent. Although a direct

comparison cannot be made, it is of some interest that the proportion of young men examined for the draft at the time of the World War and found to have defects was 46.8 per cent. About half of these were rejected for military service.

The underlying causes of this high prevalence are many and their evaluation would undoubtedly require special training along lines quite other than medicine. However, the fact that use was made of less than one-half of the referral slips issued by the clinic suggests that popular and professional interest in medicine in this area as elsewhere seemed to center on its uses in the acute emergencies of life rather than on its uses in remedying the defects and chronic conditions to which many had adjusted quite completely.

RECENT ANALYSES OF MARRIAGE RATES

by CLYDE V. KISER[1]

SINCE marriage is the formal sanctioning of a relationship which normally results in reproduction, total and differential marriage rates have intimate bearing on the numbers and characteristics of our future population. "It is obvious," says Dorn,[2] "that a population with two children per married woman and with 80 per cent of the women married is more fertile than a similar population with three children per married woman, but in which only 50 per cent of the women are married. In 1930, 18.5 per cent of the women in Massachusetts aged 20 were married as contrasted with 55.3 per cent in Arkansas. Although this difference is affected by race and migration, it indicates one of the factors influencing the higher birth rate in Arkansas."

Few in number and limited in scope though they may be, recent studies of marriage rates have been concerned with questions of undoubted relevance to future population and the family. What changes are taking place with regard to percentages married and marriage rates in our population? What differentials have been observed in marriage rates, and what have been the trends with reference to such differences? What has been the trend since the advent of the depression?

Ogburn and others[3] have explored the census data concerning percentages married for the past several decades. In his most recent article on the subject, Ogburn[4] reports that marriages increased in the United States from 1920 to 1930 even when age, nativity, and

[1] From the Milbank Memorial Fund.

[2] Dorn, Harold F.: Demographic Factors Affecting Fertility. Unpublished paper, read before a joint meeting of the American Statistical Association and the Population Association of America, Chicago, Illinois, December 30, 1936.

[3] Ogburn, W. F. and Groves, E. R.: AMERICAN MARRIAGES AND FAMILY RELATIONSHIPS. New York, Henry Holt and Company, 1928, 497 pp.

[4] Ogburn, W. F.: Recent Changes in Marriage. *American Journal of Sociology*, November, 1935, xli, No. 3, pp. 285-298.

urban-rural composition are held constant. In 1920 there were 599 married persons per 1,000 population 15 years of age and over. In 1930 there were 605, an increase of 1.0 per cent. On the other hand, however, something of a reversal of previous trends toward earlier marriages was noted during the 1920-1930 decade.

Valuable as they are for periodic bench-marks in the analysis of trends, the decennial census data pertaining to percentages married at different ages do not provide the necessary information for computing true annual marriage rates,[5] and yield nothing on the situation since the depression. In contrast to the decennial enumeration data on marital status of the population, the Vital Statistics Division of the Bureau of the Census until recently collected from state offices the number of marriages and divorces reported each year. Unfortunately, measures of economy forced the abandonment of this service in 1933, just at the time when marriage rates began to rebound from the unusually low level occasioned by the depression.

Stouffer and Spencer[6] have performed an invaluable service in securing through correspondence available returns from states for the years 1933-1935 and in building up careful estimates of marriage and divorce rates during this period. Figure 1 shows the marriage and divorce rates for the total country since 1887, as originally presented by these authors. Upon their chart the writer has superimposed the marriage rates for up-state New York since 1898.[7] The following are the chief points of interest:

1. The marriage rates for up-state New York are consistently somewhat lower than are those for the total country, due perhaps

[5] The reader must keep in mind the distinction between percentages married afforded by enumeration data and rates based upon annually reported marriages per 1,000 population.

[6] Stouffer, Samuel A. and Spencer, Lyle M.: Marriage and Divorce in Recent Years. *The Annals of the American Academy of Political and Social Science*, November, 1936, 188, pp. 56-69.

[7] Data secured from Forty-Sixth *Annual Report* of the Department of Health, State of New York, Albany, 1936, Vol. II, page 6. The rates presented in this report relate to persons marrying per 1,000 population. These were adjusted to the basis of marriages per 1,000 population for plotting in Figure 1.

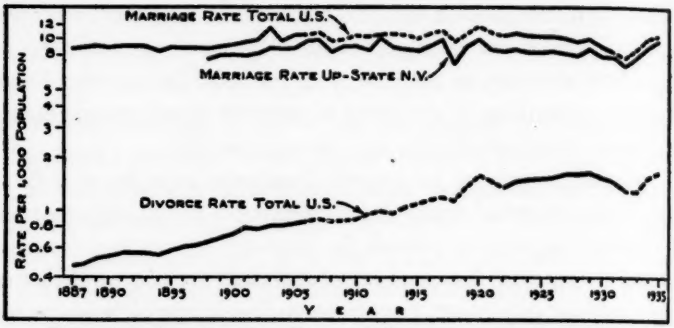

Fig. 1. Annual number of marriages and divorces per 1,000 population in the United States, 1887-1935, and corresponding trends for up-state New York, 1898-1935. United States rates for 1907-1921 are estimates by the Bureau of the Census, and those for 1933-1935 are estimates of Stouffer and Spencer (*op. cit., Annals,* pp. 58-59).

to differences in racial and rural-urban composition of the population. Nevertheless, the trends have been strikingly parallel since 1898.

2. Disregarding minor fluctuations, a gradual rise in the marriage rate from 1898 until the early 1920's is apparent for both series.

3. The corresponding but sharper increase in the divorce rate is in itself one of the factors underlying increases in marriage rates. Divorces make possible repeated marriages.

4. A slight pre-depression decline in the two series of marriage rates is noted from the 1923-1928 trends.

5. During the short period 1932-1935, marriage rates in the total country and in up-state New York practically traversed the two extremes observed throughout the history of recorded rates. In 1932 the rate for the total country probably dropped to the lowest level since 1887, the estimate being 7.86 marriages per 1,000 population. In 1935 the estimated rate for the nation as a whole was about the same as the average observed during 1924-1925. In 1932 the marriage rate in up-state New York fell to the record low level of the war year 1918. In 1935 it reached the unusually high levels attained in 1912 and 1920.

It would be difficult to estimate the influence of a depression slump in marriages upon size of future population. Obviously, the

effect is largely to delay rather than to prevent marriages, and in view of the prevalence of voluntary family limitation one or two years of delay in the marriage may not be of consequence in reducing the size of the family. On the other hand, it is very likely that a loss of this kind can never be entirely liquidated. Stouffer and Spencer, using marriage rates of 1925-1929 as a norm, calculated a loss of about 3,000,000 "marriage years" during the period 1930-1935. They further state, "On the basis of such data as are now available, the writers are convinced that between January 1, 1930 and December 31, 1935, the loss in births due solely to loss in marriages was certainly in the hundreds of thousands and perhaps exceeded a million."[8] The foregoing is qualified, however, by a statement that many of the couples deterred from marrying by the depression will marry eventually.

DIFFERENTIALS IN MARRIAGE RATES

From published census material, it is possible to secure percentages of single, married, widowed, and divorced in male and female populations 15 years of age and over according to age, nativity and color, urban or rural residence. The data are presented in varying detail for the total country, geographic areas, states, and cities. These and unpublished census data have been explored by various writers.

On the basis of his analysis of differentials afforded by census data for the past forty years, Ogburn[9] comes to the conclusion that the country is becoming somewhat more homogeneous in respect to marital status. He points out that urban-rural and sex differences in proportions married were smaller in 1930 than in 1920. Nevertheless, he finds that in 1930 the large cities were still discouraging marriage to the extent of about 15 per cent if the farm population is taken as the norm. Also, rural-urban differences in proportions married among groups under 25 were somewhat greater in 1930

[8] *Op. cit.*, Stouffer and Spencer, pp. 64-65.

[9] *Op. cit.*, Ogburn, pp. 288-290.

than in 1920. This situation, however, may be the artificial and perhaps temporary result of the large cityward migration of young unmarried individuals during the decade.

Using data secured from special tabulations by the Census Bureau, Sanderson[10] set for himself the task of ascertaining the residual relation between marital status and size of community after variations in age-distribution, sex-ratio, nativity, and color were virtually eliminated. The decrease in proportions married with increasing urbanization not only persisted but was somewhat intensified when the populations were standardized with respect to sex, age, nativity, and color.

Using as a point of departure the fact that marriage rates declined precipitately during the worst years of the depression, several attempts have been made to analyze the depression trends among specific population groups. Hamilton has attempted such an analysis among relief and nonrelief families in rural North Carolina. A population census of 1,703 white and Negro families in the open country areas of five scattered counties of that State provided two items of information, year of birth and year of first marriage, for each living member of the family regardless of the place of his residence at the time of the enumeration. Descriptive data for each family included relief and tenure status as of the year 1934. From these data, series of annual marriage rates were computed for various population groups based upon (a) number of unmarried persons 15-29 years of age at the beginning of each year and (b) number of such persons marrying during that year. The results obtained for the relief and nonrelief groups are presented in the top section of Figure 2 and are commented upon by Hamilton as follows: "During the depression years of 1932 to 1934, inclusive, in the five counties surveyed, the marriage rate of the relief population was significantly and substantially below that of the nonrelief

[10] Sanderson, Dwight: RELATION OF SIZE OF COMMUNITY TO MARITAL STATUS. Memoir 200, Cornell University Agricultural Experiment Station, Ithaca, New York, 1937, 74 pp.

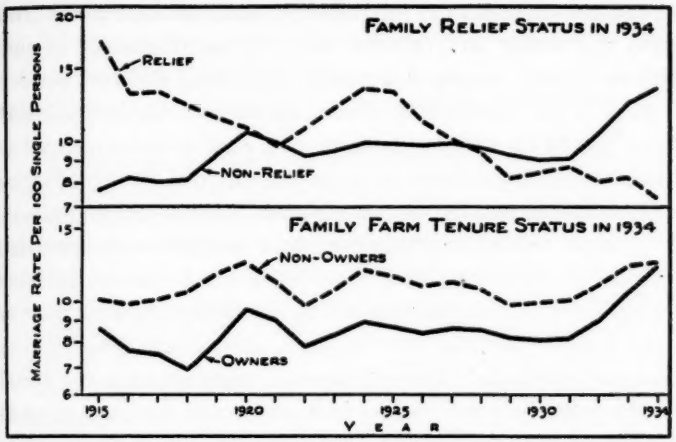

Fig. 2. Annual number of marriages per 100 single persons 15-29 years of age from rural families in North Carolina, 1915-1934, according to relief and farm-tenure status of families in 1934. Rates are three year moving averages with mid-years given a weight of 2 and the adjacent years 1 each. (Adapted from Hamilton's charts, *op. cit., Rural Sociology,* pp. 455, 468.)

population. . . . During the period from 1915 to 1919 the marriage rate of the relief population (on relief in 1934) was 13.0 per 100, as compared with a nonrelief rate of only 8.1. . . . Again, beginning with 1922 there is a five-year period during which the marriage rate of the relief population was significantly higher than that of the nonrelief population."[11]

In view of the previously observed comparison, it is somewhat surprising that the marriage rates of individuals from farm owning families were strikingly parallel to those of nonowners (lower section of Figure 2). One might expect the tenant group to be more weighted with relief recipients. Original data furnished by the author substantiate this assumption, showing that those classified as "relief" constituted about 6 per cent of the owners, and about 20 per cent of the nonowners. The previously observed relief-nonrelief differences could be largely submerged in the analysis by

[11] Hamilton, C. Horace: The Trend of the Marriage Rate in Rural North Carolina. *Rural Sociology,* December, 1936, i, No. 4, pp. 455-457.

tenure as a result of: (a) the relatively small number in the actual relief population and (b) the relatively small number of those classed as farm owners. A generally disturbing element, however, is the bi-racial composition of the samples used for both comparisons. This factor assumes importance in view of: (a) the racial dissimilarity of trends shown in a comparison given for total Negroes and total whites in the sample, (b) the unequal representation of Negroes in the various groups compared, as shown by original data. The author, however, claims no undue conclusiveness in the results secured, and he lists the outstanding limitations. Among these are small samples, and the fact that nonresident living offspring were necessarily included. The exclusion of migrants from the sample would naturally have introduced a bias in the direction of undue proportions of unmarried individuals.

The ecological approach to differentials in marriage rates in a large city is afforded by Bossard's recent analyses in Philadelphia.[12] His primary interests were to describe and interpret two situations: (1) variations in marriage rates in different areas of the City, (2) variations in trends of marriage rates during the depression in different areas of the City. Briefly, his method was to secure from the Philadelphia Marriage License Bureau and from bureaus of surrounding towns the street addresses of 20,000 male Philadelphians who married during specific intervals of time before or during the depression.[13] The marriages were allocated to proper census tracts. Marriage rates per 1,000 marriageable males were computed for each tract, using official census tract data for 1930 as population bases. Areal variations in marriage rates and their trends

[12] Acknowledgment is hereby given to Dr. J. H. S. Bossard for his generosity in loaning the writer two unpublished manuscripts: "Ecological Areas and Marriage Rates" and "Depression and Pre-Depression Marriage Rates: A Philadelphia Study." These papers were read at meetings of the American Sociological Society, in Chicago, December 28-30, 1936. The latter paper is to be published in the *American Sociological Review*.

[13] The first 10,000 cases, a "pre-depression" series, represented consecutive marriages from January 1, 1928 to November 1, 1929. The second 10,000 cases, a "depression" series, covered the periods November 1, 1931 to July 1, 1932; October 1, 1932 to March 1, 1933; and January 2, 1935 to May 15, 1935.

during the depression were analyzed with reference to characteristics of the local areas, particularly in regard to spatial characteristics and nativity-color composition.

Bossard's chief conclusions may be stated briefly as follows:

> 1. The total marriage rates, based upon the pre-depression and depression series combined, generally appeared to be relatively high in areas characterized by high proportions of Negroes and foreign whites (especially Russian Jews) and relatively low in areas characterized by high proportions of native whites of native parents. The spatial pattern of marriage rates in Philadelphia was generally consistent with that found in urban studies of other social phenomena. If one disregards the low marriage rates in the central business district of the City and in other nonresidential areas, the rates tended to decrease as one proceeded outward from the center of the City. With certain exceptions, there was a similar decrease in proportion of foreign whites and Negroes as one proceeded toward the periphery of the City.
>
> 2. The trends in marriage rates during the depression were not uniform throughout the City. "So far as Philadelphia is concerned, the conclusion seems inescapable that the presence in large proportions of Negroes, Russian Jews, and, to a lesser extent, of Italians, among the marriageable males of areas in the City, coincides with a rise in the marriage rates of those areas during the depression; while a preponderance of older native-white stock, and of northern and western European stock, coincides with a lowering of the rates."[14]

For the primary purpose of the study, that of depicting areal differences in marriage rates in a large city together with demographic data concerning those areas, the study has much local and sociological value. In considering the significance of the association of marriage rates and their trends with nativity and color, however, it is necessary to bear in mind certain limitations of the data. Chiefly, these were as follows:

[14] Bossard's unpublished manuscript, "Depression and Pre-Depression Marriage Rates: A Philadelphia Study," page 21.

(a) Marriage rates were not computed by nativity groups.[15] The procedure was simply that of computing total marriage rates by census tracts and relating these to the nativity-color composition of the marriageable males in the respective tracts.

(b) No adjustment could be made for age differences due to the inadequacy of census tract data.[16]

(c) The depression sample included some marriages in 1935, a year in which marriage rates were generally very high throughout the country due to accumulation of delayed marriages and probably to improved economic conditions.[17]

For further testing the relation of nativity and color to levels and trends in marriage rates during the depression, the Annual Reports of the New York State Department of Health provide unusual data. The writer has tabulated from these reports from 1925 through 1935 the annual numbers of marriages in New York State, exclusive of New York City, among males 15-44 years of age, according to nativity, color, and age. The annual numbers of marriages per 1,000 estimated single, widowed, and divorced males 15-44 years of age were computed for native-white, foreign-white, and Negro groups.[18]

[15] According to information received through correspondence with the author, the above and the following limitation were necessitated by inadequacies of basic data.

[16] General steps were taken to test the importance of age differences, and on the basis of these the author reported, ". . . It would appear that the age factor may be disregarded in most tracts, and needs to be considered only in the case of tracts with marked deviations." Unpublished manuscript, "Ecological Areas and Marriage Rates," page 4. However, the tests were confined to age differences in tracts and included no comparison of ages among marriageable males according to nativity.

[17] The inclusion of 1935 marriages in the "depression" series may be partially responsible for the fact that records for only seventeen and one-half months were required to furnish the desired 10,000 cases for a "depression" series as compared with twenty-two months for a "pre-depression" series.

[18] The numbers of single, widowed, and divorced males of specified age, nativity, and color in up-state New York were estimated for the years 1925-1930 by application of the arithmetic method to the 1920-1930 changes as computed from the last two Federal Census reports. The above changes, however, were not projected for estimates during the post-censal years 1931-1935. Net immigration into this country has been *nil* during the past several years. It also appeared probable that the increase of native whites and Negroes through migration was negligible during the period of the depression. The following procedure was therefore used for post-censal estimates:

From the 1930 Census the number of males 10-44 years of age in up-state New York was secured for five-year age groups according to nativity and color. On the assumption that the mortality among males 10-40 years of age was slight and that there was little loss

(Continued on page 271)

Year	Number of Single, Widowed, and Divorced Males 15-44 Years of Age Estimated as of January 1			Grooms per 1,000 marriageable Males					
				Rate Not Standardized			Rate Standardized		
	White		Negro	White		Negro	White		Negro
	Native	Foreign		Native	Foreign		Native	Foreign	
1925	492,020	79,684	8,680	67	90	96	68	72	86
1926	501,936	79,391	9,177	68	89	105	70	72	93
1927	511,852	79,098	9,674	68	85	97	70	69	86
1928	521,768	78,805	10,171	65	82	93	68	66	84
1929	531,684	78,512	10,668	70	87	89	73	69	80
1930	541,600	78,219	11,165	66	78	87	69	61	78
1931	552,994	74,245	11,190	64	75	84	67	59	75
1932	565,021	69,000	11,060	59	71	81	62	56	73
1933	577,049	63,756	10,927	66	77	82	68	61	79
1934	589,077	58,511	10,794	78	91	88	81	72	85
1935	601,105	53,266	10,661	83	102	91	87	80	91

Table 1. Estimated numbers of single, widowed, and divorced males 15-44 years of age in up-state New York and marriage rates from 1925 to 1935, according to nativity and color.

The results are presented in Table 1 and Figure 3. In the top section of the chart, the rates are based upon marriages per 1,000 males 15-44 years old according to nativity and color, without any further correction for age differences. The rates shown in the lower section are based upon identical data, but the rates for each of the three groups were adjusted to a common age standard.[19] The chief and identical points of interest in the two series are: (a) the strikingly parallel trends in the marriage rates of foreign and native-

or gain from migration during the 1930-1935 period, it was possible to estimate that the number of males 10-14 years of age in 1930 would constitute the number 15-19 in 1935; those reported as 15-19 in 1930 would be 20-24 in 1935; and those 35-39 in 1930 would be 40-44 in 1935. Assumed age distributions as of 1935 were thus built up for each nativity-color group. Computations were then made for average annual changes between the actual number within a specified age group in 1930 and the assumed number in 1935, and on the basis of this the estimates were secured for each successive year 1931-1935, adjusted to January 1. The numbers secured were then restricted to single, widowed, and divorced males by application of proportions not married in specific age, nativity, and color groups as computed from the 1930 Census reports pertaining to this area.

[19] The standard used was the age distribution of the combined native white, foreign white, and Negro males in up-state New York reported as single, widowed, or divorced, and 15-44 years of age by the 1930 Federal Census.

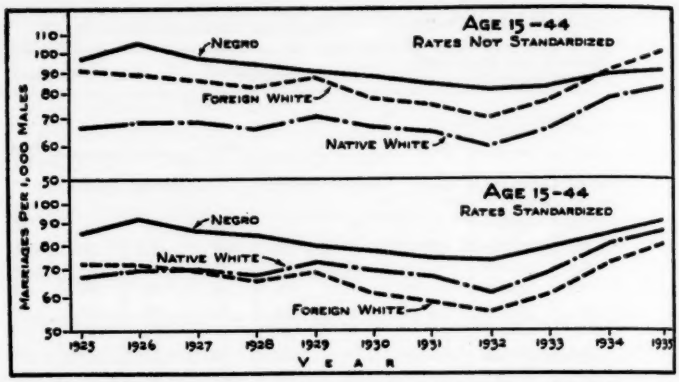

Fig. 3. Annual number of marriages per 1,000 single, widowed, and divorced males 15-44 years of age in up-state New York, 1925-1935, according to nativity and color.

white groups during the depression, and (b) the smaller apparent effect of the depression upon the marriage rates of Negroes than upon either group of whites. A further point of interest is the reversal of the relative levels of the marriage rates of native and foreign whites by the process of standardization. The lower unstandardized rate among native whites is partially due to the larger proportions in the 15-19 age group, a period when relatively few males marry. Although standardization brings the rates for the foreign whites below the levels of the natives, it should also be remembered that a larger proportion of foreign whites than native whites live in urban areas. The difference, however, is smaller than might be expected.[20] Constancy of the rural-urban factor would doubtless introduce some alteration in the relative levels of the standardized marriage rates and possibly might show differences by nativity in trends of the marriage rates during the depression. The latter contingency, however, would appear unlikely. Unfortunately, the data utilized were not sufficiently refined for such analysis.

[20] According to the 1930 Census, the proportions of the native-white, foreign-white, and Negro population in up-state New York enumerated in urban areas were 61.5 per cent, 73.1 per cent, and 73.8 per cent, respectively.

Age-specific rates, by nativity and color, portrayed essentially the same situation as that shown by the standardized rates. This similarity was especially striking among males 20-24 and 25-34. In each nativity and color group the above ages were represented by sufficiently substantial numbers to yield dependable comparisons.

In considering the findings for up-state New York, it must be remembered that marriage rates are subject to any errors involved in population estimates, and such estimates are particularly hazardous for post-censal years.[21] It should also be emphasized that the results observed in up-state New York are not closely comparable with those secured by Bossard from the analysis of marriages in a single large city. The New York data afford no analysis of differential marriage rates by specific racial strains of whites. They are further limited in value as a result of the aforementioned variations in rural-urban composition among the three groups studied. On the other hand, they permit the computation of rates standardized for age by nativity and color over a period of years. The showing made by Negroes in regard to levels and trends in rates partially agrees with the Philadelphia findings. It would appear, however, that the depression trends in marriage rates of foreign whites and native whites have been remarkably parallel in up-state New York. Furthermore, the data emphasize the fact that age differences cannot safely be ignored in a comparison of levels of marriage rates, by nativity.

The above summaries of recent data indicate primarily that much remains to be known about variations in marriage rates. One virtually untouched aspect of the problem is that of differential

[21] A partial test of the accuracy of results obtained by the method described in Footnote 18 is afforded by the fact that its application toward an estimate of the total number of males 15-44 years of age on July 1, 1935 in up-state New York yielded a figure only 2 per cent below that derived by the Vital Statistics Division of the New York State Department of Health through the use of an entirely different method. The estimate based upon the method used in this paper was 1,372,507, while that derived by the State office was 1,401,077. It should be emphasized, however, that the method used in this paper is applicable only to age groups characterized by low mortality rates and only during periods when migration is negligible.

marriage rates according to social class. Some data on this question will soon be available from an analysis nearing completion in the Fund's office. From family rosters secured in several surveys, it has been possible to investigate proportions married among offspring by sex, age, and nativity, and according to certain social attributes of parents. It is hoped that such data, despite their manifest limitations, will partially fill an important gap in our knowledge. Most of the studies of class variations in fertility have been made with reference to married couples. Our ignorance of class differences in marriage rates has precluded adequate interpretation of existing knowledge in terms of differential population replacement.

FAMILY COMPOSITION USED IN THE ANALYSIS OF HOME VISITS BY PUBLIC HEALTH NURSES

by MARIAN G. RANDALL[1]

THERE are two or more children in many families. For the public health nurse, this means that a home visit may offer an opportunity to extend health supervision services to children of different ages. These are obvious facts. Not so well known, however, is the frequency with which children in different age groups are found in the families or to what extent all the children in a number of families receive services from the public health nurse. It is the purpose of this paper, therefore, to give the results of a study in one community as an illustration of how such information may be used in evaluating some of the public health nursing procedures. In addition to the count of children and count of services they received, a brief analysis is made of the recorded content of the nurses' home visits. The discussion is limited to the services given by Health Department nurses to children in low-income families in the Bellevue-Yorkville district in New York City.

In using this experimental method of analysis, there are some assumptions. One is that the health department nurse writes on her record what she considers important information about the visit for health supervision of children. This may be only partially true.[2] While incompleteness in the record of the services rendered limits the analysis which can be made, it seemed possible, after observation of the nurses at work and after a study of their policies and use of records, to make some reasonably accurate interpretations of the recorded facts.

[1] From the Milbank Memorial Fund.

[2] Record keeping has been called one of the weak points in public health work, a fact which may be attributed in part to the limited use of the record data and to the practice of thinking of record keeping as a separate phase of the nursing activities rather than as an important part of each type of public health work.

It is also assumed that it is advisable and effective to carry out a so-called generalized service, in which the territory covered by the organization is divided into small districts, in each of which the same nurse carries out all the activities in the work undertaken by the nursing service. This assumption is probably acceptable, since current practice indicates that most health departments have given up the specialized type of service in which a nurse concerns herself with only one age group or one type of problem. The idea that the family is the unit for health supervision and that one nurse should be concerned with all problems in the family is common to all communities having a so-called generalized nursing program. But the types of activities included in these programs may vary considerably in different localities. It is not intended, therefore, to suggest ways of standard practice or to point out what should be included in a generalized program. The method of analysis may be of interest, however, as a means of finding out more details of any practice which local authorities have judged suitable for their community.

THE STUDY AREA

The Lower East Side of New York City from East Nineteenth Street to Fifty-Ninth Street, and from Third Avenue to the East River, is a "poor" economic section. In that part of the Bellevue-Yorkville district, according to the 1930 Federal Census, 40 per cent of the population is foreign born and 35 per cent native born of foreign-born parents. Italy and Ireland are the foreign countries most frequently represented. The Federal Census gives further information which may be used as indications that the families living in this area have need for health supervision services. For example, the 1930 Census shows that in the ten sanitary areas in this section along the river, the children represent a slightly higher per cent of the total population, and the median monthly rental of homes is lower than in the rest of the district or in the total Bellevue-

Yorkville district.[3] The birth rates and infant death rates for 1930 are higher in the area studied than in the total district.[4]

HEALTH PROGRAM IN STUDY AREA

The activities of the Bellevue-Yorkville Health Demonstration, sponsored by the Milbank Memorial Fund in cooperation with the official and private agencies in the district, were organized to meet the problems in a district having need for more services than an ordinary community. During the demonstration period, the latter part of which coincides with the time that information for this study was collected, there were public health nurses in the official and private agencies in the ratio of one nurse to 4,500 population.

As a part of the total Health Department program, the nursing activities included the traditional services for communicable diseases (the more serious diseases) and school health work, and, in addition, educational and preventive services, especially for children. Reports compiled in the district office show that during the time represented in this study the nurses gave from 20 to 40 per cent of their total time to clinic services. These included tuberculosis diagnostic clinics, cardiac clinics, child health conferences for infants and young children, and a few other special clinics.[5] For the younger children, the emphasis of the Health Department program was put upon the services offered in the health conferences. A physician examined the babies and young children and advised the mother in the routine care to keep the children well. The nurse assisted the physician with the examination and rendered her own special ser-

	Study Area	*Remainder of District*	*Total Bellevue-Yorkville District*
Per Cent of Population Under Five Years of Age	5.7	3.6	4.6
Per Cent of Population 5-14 Years of Age	14.0	9.6	11.7
Median Monthly Rental	$31.26	$86.31	$40.44
Birth Rate (1930)	17.0	10.6	13.8
Infant Death Rate (1930)	90	66	80

[4] From a statistical reference handbook compiled for the Bellevue-Yorkville district for the years 1927-1931 by G. J. Drolet and E. H. Clark.

[5] Prenatal clinics were conducted by private agencies and not included in the official agency program of this district.

vices in the form of health teaching. For the children of school age, the examination by the physician was made in the school. The nurse assisted with the examination and later attempted to see the parents to explain the school physician's report and discuss the health needs of the child.[6]

To stimulate attendance at health conferences, to assist the mothers in carrying out clinic or school physician's recommendations, to give any further instructions needed, and to learn of living conditions, the nurses made visits in the homes. The home visit presents an opportunity to extend services to all children in the family. The adults must necessarily be included in considering the health of the family, but the study reported here is confined to the services for children.

THE FAMILIES STUDIED

In connection with a special maternity and infancy survey in this area, two special investigators visited the homes of all newborn infants registered during a twelve-month period, except those in large apartment houses with relatively high rentals. Inquiries were made not only about the baby[7] but included any other children in the family. While in many of these families there were other children, this first group represents more of the families with only a first-born infant or families with very young children, that is, a higher proportion of young families than would be found in a cross-section of all families with children in this district.

For part of the time during which the investigator went to given addresses to follow up birth certificates, she visited one or two other families in each of the tenement houses. From this more representa-

[6] During a part of the time used in this study, an experiment was tried in asking the parents to visit the nurse in the school, substituting these conferences for the nurses' home visits (Prescott, Josephine W., R.N.: School Nursing Consultation Service in the Bellevue-Yorkville District. The Milbank Memorial Fund *Quarterly*, January, 1934, xii, No. 1, pp. 81-84). A few of these school conferences are included as visits in this study.

[7] The survey and sample have been described in considerable detail in a previous paper. Randall, M. G.: Public Health Nursing Service for Infants. The Milbank Memorial Fund *Quarterly*, April, 1935, xiii, No. 2, pp. 185-200.

tive group of low-income families, 128 families with children are used for part of this study and are designated as Group II.

One of the questions asked in the homes concerned income. Only about 2 per cent of all the families visited had as much as $2,000 per year, while 50 per cent had less than $800. In about one-fourth of this latter group of families that are classed as very poor, the father was unemployed, and nearly one-half of the families had six or more members. They lived in four and five-story tenement buildings, in "cold water flats," with poor light and ventilation.

After ascertaining from the mother the number and ages of the children in the family, the health problems, and the health services received, the records were matched with the City Health Department clinic and nurses' records. Data were collected for health services received during the twelve months preceding the investigator's first home visit. While the data collected for any family cover one year, the records for the various families do not coincide exactly in time. However, all twelve-month periods fall within the calendar years 1930-1932.

The ages of the children in these two groups of families are shown in Table 1. When compared with the age groupings reported in the 1930 Federal Census, it will be noted that the child popu-

Table 1. Ages of the children in two samples of families living within selected areas of the Bellevue-Yorkville district of New York City, compared with the ages of all children reported by the Federal Census for the same area.

Age of Children	Group I (561 Families with Newborn Infants)	Group II (Unselected Sample of 128 Families with Children)	Total Study Area U. S. Census 1930
	NUMBER OF CHILDREN OF EACH AGE		
Total Children	1,413	283	14,456
Under 5	1,000	101	4,202
5–14	413	182	10,254
	PER CENT OF CHILDREN OF EACH AGE		
Total Children	100.0	100.0	99.9
Under 5	70.8	35.7	29.0
5–14	29.2	64.3	70.9

Age Groups of Children in the Family	Families Having Each Composition		Children in the Families					
			Infants[1]		Preschool		School	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total	128	100.0	22	100.0	79	100.0	182	99.9
Infants Only	6	4.7	6	27.3	–	–	–	–
Preschool Only	11	8.6	–	–	14	17.7	–	–
School Only	58	45.3	–	–	–	–	98	53.8
Infants and Preschool	6	4.7	6	27.3	10	12.6	–	–
Infants and School	5	3.9	5	22.7	–	–	7	3.8
Preschool and School	37	28.9	–	–	48	60.8	68	37.4
Infants, Preschool, and School	5	3.9	5	22.7	7	8.9	9	4.9

[1] Children under 2 years of age are called infants to comply with the classification used by the New York City Health Department.

Table 2. Family grouping of children in an unselected sample of low-income families living in the Bellevue-Yorkville district of New York City.

lation of Group I[8] is made up of a much higher percentage of children under five, as expected, and in Group II the percentage of young children is 7 per cent higher than in the total area. Since young children and low income usually increase the need for health supervision, these two samples of families probably represent the type most frequently visited by the Health Department nurses.

AGES OF THE CHILDREN IN A SAMPLE OF FAMILIES

The way in which children of three different age groups are combined in the Group II sample of families is shown in Table 2.[9] It is noted that 27 per cent of the infants did not have older brothers or sisters. When the nurse visited the babies in these families, it was impossible to include visits to other children. For the infants who had siblings, an equal number were in families with preschool or school children, or both older age groups.

In the preschool age group, 18 per cent of the children did not have younger or older siblings. For those who did have brothers

[8] The families with newborn infants for which information was complete for a twelve-month period.

[9] Children under two years of age are called infants, to comply with the classification used by the New York City Health Department.

and sisters, 60 per cent had older siblings and 12 per cent had younger ones. Nine per cent had both older and younger siblings.

Fifty-four per cent of the school children were in families without younger children, and 37 per cent had preschool sibling.

In using ages of children to designate particular kinds of health supervision problems, nearly half of this sample of 128 families may be said to have more than one type of problem.[10]

HOME VISITS TO FAMILIES WITH CHILDREN

As previously stated, the emphasis in the health supervision program for young children in Bellevue-Yorkville was put upon the supervision given in child health conferences. If the homes were visited often, it would probably be unnecessary to include every child in the family in the discussion of health problems at every visit. But for the occasional visits there are, undoubtedly, some points pertaining to the health of each child which could be profitably discussed, especially in low-income families.

Not all the families in this unselected sample had home visits from Health Department nurses in the twelve-month period studied for each family. For those who were visited there was an average of 3.3 visits per family. The way in which family visits were distributed is shown in Table 3. Forty-seven per cent of the families were not visited. The remaining sixty-seven families constitute too small a sample for the different number of visits to have statistical significance, but there is an indication that the families with children of two or more age groups were visited more frequently than the families with children of one age group.

An analysis of the health problems in this total sample of 128 families shows very slight differences in the family needs for health supervision. There were, for example, nineteen of the infants who

[10] This knowledge of how children are combined in families may be used in planning for the number of nurses needed to carry out the home visiting program for health supervision of children. Randall, Marian G.: How Many Public Health Nurses Are Needed? The Milbank Memorial Fund Quarterly, April, 1934, xii, No. 2, pp. 160-170.

Age Groups of Children in the Family	Total Number of Families	Number of Families Visited Each Number of Times[1]				
		Not Visited	One Visit	Two Visits	Three Visits	Four or More Visits
Total	128	61	18	13	12	24
Infants Only	6	5	0	0	0	1
Preschool Only	11	9	2	0	0	0
School Only	58	27	13	7	7	4
Infants and Preschool	5	0	0	0	1	4
Infants and School	5	3	0	1	0	1
Preschool and School	37	15	2	4	4	12
Infants, Preschool, and School	6	2	1	1	0	2

[1] Visits as here used are visits to the household regardless of how many individuals were included in the visit.

Table 3. Home visits by Health Department nurses for health supervision of children, in an unselected sample of families in the Bellevue-Yorkville district of New York City. (A twelve-month period was used for each family.)

did not attend the child health conference; sixteen of these infant families were not visited in the homes and three were visited once. In about an equal number of these families the infant was the only child or there were older children. There were forty-nine families in which the preschool children did not attend child health conferences; and twenty of these families were not visited, eleven were visited once, and eighteen were visited two or more times. A few of the school children with minor defects were in the families visited the greatest number of times, although there were no other children in the families, and some of those with several reported defects were in families not visited. Other school children with defects were in families who received several home visits. This does not mean that the families visited the greatest number of times did not need the health supervision services given them. But from the information available from the families and from Health Department records[11] the combined needs of the children in families were not significantly different in the families not visited, in families visited once, or in the families visited several times.

[11] Special record sheets were given to the staff nurses for every family in this study, asking them to supply additional information about the families if regular records seemed to them to be incomplete. Very little additional information was obtained from this source.

FAMILY COMPOSITION AND VISITS RECORDED FOR CHILDREN OF EACH AGE

If we may assume that all the children in the families visited were in sufficient need of health supervision to be included in each home visit, the household visits to families in which children of specific ages were present may be studied with reference to the recorded case visits (visits to individual children). Table 4 shows the nurses' recorded case visits to children of a specified age and to other children.

For example, in thirty-two visits to homes in which there were infants, twenty-two infant visits were recorded; nine of these were combined with visits to other age children, and thirteen were infant only visits. For ten of these household visits no infant visit was recorded. This last figure means that in 31 per cent of the household visits to homes in which there were infants, no infant visit was recorded. In a like manner, Table 4 shows that for the ninety-seven visits to households in which there were preschool children, 45 per cent gave no record that the preschool child had been visited. For the visits to households in which there were school children, only 15 per cent had no record of visits to school children.

Table 4. Home visits by Health Department nurses to sixty-seven families with children, in which individual case visits were recorded for children of a specified age and for other children in the family, Bellevue-Yorkville district, New York City.

Children in Family	Visits to Household	Record of Number of Nurses' Visits to:			Per Cent of Household Visits Recorded as Visits to:		
		Specified Age Only	Specified Age and Other Children in Family	Other Children Only	Specified Age Only	Specified Age and Other Children in Family	Other Children Only
Infants in Family	32	13	9	10	40.6	28.1	31.3
Preschool Children in Family	97	21	32	44	21.6	33.0	45.4
School Children in Family	158	101	32	25	63.9	20.3	15.8

It is shown also, in Table 4, the per cent of the household visits recorded as visits to children of one age group. Forty per cent of the visits to infant households were recorded as infant visits only. It will be remembered, from Table 2, that 27 per cent of the infants in the sample of families had no older siblings. If this may be interpreted as the per cent of the infant visits which could not be combined with visits to other children, there is considerable difference in the per cent of visits that were recorded for the specified age only and the per cent which needed to be so recorded because of the family composition.

Returning to Table 4, it is noted that 21 per cent of the household visits to families with preschool children were recorded as visits to that age group only. According to the analysis of family composition (Table 2), 18 per cent of the preschool children were in families without children of other age groups. For the families with school children, 64 per cent of the calls were recorded as school visits only, while the family composition table shows that 54 per cent of the school children had no younger siblings.

If the nurse confines her visit to a discussion of one subject with the mother, such as nutrition, it may apply to all children in the family. It might be considered an exaggeration to record this family visit as five case visits because there were five children in the family. On the other hand, if the nurse visits the home but once and only suggests that the mother bring the infant to the child health conference and never mentions the older children, or may not even know how many children there are in the family, it is far from carrying out a generalized program of health supervision. And also, if the nurse inquires about all children in the family, advises the mother regarding the various types of health problems, and then records only that she urged attendance of an infant at the health conference, she is not making a record of a generalized program of health supervision. Both these things are happening. There are, of course, the occasional instances when one child in a large

family receives frequent visits because of a special problem. Obviously these repeated visits would not be expected to include all other children in the family. But such intensive home service is not frequently provided in the city health program, and in this sample of families only one infant and one school child with special problems received frequent visits.

Reports of nurses' home visits are generally tabulated separately by age group or problem. In carrying out the generalized program these case visits are combined in family visits. An occasional study or check upon the way these case or problem visits are being combined is an indication of the extent to which the nurses are utilizing the opportunities provided in the policy of a generalized health supervision program. It would not be difficult to set up classifications on daily reports of these "combined visits" in order to make occasional counts of the generalized home services. This suggests an experiment in recording family visits describing the content in a manner that will show the extent to which family health supervision is considered. A record of visits to families might prove more descriptive of the service in a community than a record of accumulated visits to individuals.

After an analysis of the needs of the families, the services available, and the program undertaken, this study of a small unselected sample of families suggests that in about 50 per cent of the nurses' home visits, health supervision services may be given for more than one age group of children. Further study is needed to determine how typical this group is of all families in this same district and to determine what the frequency of these age combinations is in other types of communities.

CONTENT OF NURSES' HOME VISITS

For the calls made by the Health Department nurses to the total sample of families with children (both Group I and Group II), information was collected from the records concerning the content

of home visits.[12] Of the total 689 families, 458 or 67 per cent were visited, and as usually counted these visits would appear on the Health Department reports as 556 infant visits, 297 preschool visits, and 473 school visits. For this analysis, however, the content of the visits was studied on the basis of the household or family visits. For the illustrations presented, the records of families with two or more children were selected and the recorded details of the visits to these households were listed. These are shown in Table 5. To facilitate discussion, the letters A, B, and C designate the three samples of families used in this table.

The A families are those who have both infants and preschool children. A total of 131 household visits to these families was analyzed, and in 111 of them some service for the infant was recorded. For twenty of the calls in these homes the nurse did not record infant services, and for eighty calls she did not record preschool services. When the calls are tabulated according to the specified services recorded, it is noted that for thirty-nine visits described for the infants as "follow-up of birth slips" only five, or 13 per cent, had preschool services recorded. But for twenty-one, or 53 per cent, of these visits so described for the infant, the preschool child was registered in clinic, indicating that these were not visits to families previously unknown to the Health Department. For the thirteen remaining "birth slip visits," the preschool child in the family was not registered either in clinic or on the nurses' records. As these visits were recorded, they could not be classed as productive in finding the preschool children who probably needed some health supervision.

The C families are those who have both preschool and school children. From a total of sixty-three household visits to these fami-

[12] There is a record form provided called the family folder, which provides for a listing of the family members and which holds together the individual record sheets kept for each member of the family. This family folder was used by the nurses for 18 per cent of the total sample of families studied. All individual record sheets were copied for this study, and whatever the nurse considered important enough to record was listed for analysis.

lies, fifty-one were recorded as including some service for the school children, and in thirty-seven of them some service for the preschool children was recorded. For twelve of the visits in these homes the nurse did not record school services, and for twenty-six she did not record any preschool services. According to the specified services written on the records, the school children were most frequently visited to follow up a physical defect reported from the school medical examination. Table 5 shows that for twenty-five visits with such services recorded for school children, seventeen had no services recorded for the preschool children in the family, and for seven of the seventeen visits the preschool child was not registered in clinic.

The two illustrations, namely, infant visits to follow up a birth registration and school visits to follow up a reported defect, are cited because they are so often the first reason or source of information for the home visit. It is expected that these reports of need for some special service will be used by the nurses as a means of finding other children in the families who need health supervision. This type of analysis, therefore, may prove useful in appraising this phase of the public health nursing activities. Other special listed services can be similarly used in an analysis of health supervision visits to families with children.

It is obvious that the few services listed are inadequate in describing the content of nurses' home visits. They are general terms which mean very little to persons outside the health organization. For example, a visit to an infant which is recorded as "instruction in hygiene" implies that all the routine discussion and teaching which the organization has set up as a standard for this type of visit have been included. The care, bathing, and feeding of the baby are supposed to be discussed and medical supervision advised. There would, naturally, be great variations in different homes and for different nurses. And there is a question of the need for or practicability of a detailed description being written on each record of every subject

Table 5

Analysis of the Recorded Content of Nurses' Home Visits to Families with Two or More Children Showing the Number of These Household Visits with Specified Service for Children of One Age in Which Services for Other Children were Recorded

• • •

A. Families With Both Infants and Preschool Children

Summary:
- Number of household visits analyzed — 131
- Infant services recorded for — 111 visits
- Preschool services recorded for — 51 visits
- Both infant and preschool services recorded for — 31 visits

Infant Services Recorded	Number of Household Visits	Preschool Services Recorded							
		Total Some Service	Advised Return to Clinic	Instruction in Hygiene	Instruction in Care of Communicable Disease	Instruction in Care of Special Problem	No Preschool Service: Total	No Preschool Service: Child Registered in Clinic	No Preschool Service: Child Not Registered in Clinic
Total	131	51	17	27	4	3	80	38	42
Total—Some Service	111	31	11	18	2	—	80	38	42
Follow-up Birth Slip	39	5	1	3	1	—	34	21	13
Instruction in Hygiene	59	16	3	12	1	—	43	15	28
Advised Clinic Registration	3	2	1	1	—	—	1	1	—
Advised Return to Clinic	10	8	6	2	—	—	2	1	1
Total—No Infant Service	20[1]	20	6	9	2	3			

B. Families With Both Infants and School Children

Summary:
- Number of household visits analyzed — 72
- Infant services recorded for — 55 visits
- School services recorded for — 24 visits
- Both infant and school services recorded for — 7 visits

Infant Services Recorded	Number of Household Visits	School Services Recorded					No School Service		
		Total Some Service	Follow-up of Defects Reported	Instruction in	Instruction in Care of	Instruction in Care of	Defects Reported		No Defects Reported

B. Families With Both Infants and School Children

SUMMARY:

Number of household visits analyzed	72
Infant services recorded for	55 visits
School services recorded for	24 visits
Both infant and school services recorded for	7 visits

INFANT SERVICES RECORDED	NUMBER OF HOUSEHOLD VISITS	Total Some Service	Follow-up of Defects Reported from School Examination	Instruction in Hygiene	Instruction in Care of Communicable Disease	Instruction in Care of Special Problem	No School Service		
							Total	Defects Reported from School Examination	No Defects Reported from School Examination
TOTAL	72	24	17	6	1	—	48	35	13
Total—Some Service	55	7	4	2	1	—	48	35	13
Follow-up Birth Slip	11	—	—	—	—	—	11	8	3
Instruction in Hygiene	33	6	3	2	1	—	27	20	7
Advised Return to Clinic	11	1	1	—	—	—	10	7	3
Total—No Infant Service	17	17	13	4					
Registered in Clinic	4	4	4	—					
Not Registered in Clinic	13	13	9	4					

C. Families With Both Preschool and School Children

SUMMARY:

Number of household visits analyzed	63
School services recorded for	51 visits
Preschool services recorded for	37 visits
Both school and preschool services recorded for	25 visits

SCHOOL SERVICES RECORDED	NUMBER OF HOUSEHOLD VISITS	PRESCHOOL SERVICES RECORDED							
		Total Some Service	Advised Return to Clinic	Instruction in Hygiene	Instruction in Care of Communicable Disease	Instruction in Care of Special Problem	No Preschool Service		
							Total	Child Registered in Clinic	Child Not Registered in Clinic
TOTAL	63	37	13	15	4	5	26	17	9
Total—Some Service	51	25	12	8	4	1	26	17	9
Follow-up of Defect[2]	25	8	5	3	—	—	17	10	7
Instruction in Hygiene	17	12	7	4	—	1	5	3	2
Instruction in Care of Communicable Disease	9	5	—	1	4	—	4	4	—
Total—No School Service	12	12	1	7	—	4			
Defect Reported[2]	5	5	—	3	—	2			
No Defect Reported[2]	7	7	1	4	—	2			

[1] These infants were not registered in clinic.
[2] Defects reported from school examination.

included in the nurse's discussion with the mother. For a special study of the content of home visits, to reveal the teaching ability of the nurse, or to measure the effectiveness of specific services, exact detail would be needed of all that transpired during the nurse's visit in the home. While the usual information from nurses' records is too limited for such a detailed study, there are some recorded facts which can be used to measure public health nursing activities. The services tabulated for families with two or more children (Table 5) illustrate a method of analyzing these data.

SUMMARY

A study of the composition of an unselected sample of families with children, living in the poorest section of the Bellevue-Yorkville district in New York City, shows that 27 per cent of the infants did not have older brothers or sisters, that 18 per cent of the preschool children did not have younger or older siblings, and that 54 per cent of the school children were in families without younger children. If this is applied to the public health nursing activities, it means that in about half of their home visits there was an opportunity to extend services to children of different ages.

An analysis of the Health Department nurses' home visits to this sample of families revealed that in 31 per cent of the household visits to families in which there was an infant, no infant visit was recorded; that 45 per cent of the visits to families with preschool children gave no record that the preschool child had been visited; and that for the visits to households in which there were school children, 15 per cent had no record of visits to school children.

In the households visited, there was an average of 3.3 visits per family in the twelve-month period studied for each family. From the information available from the families and from Health Department records, the combined health needs of the children in families were not significantly different in the families not visited, in families visited once, or in the families visited several times.

The records of over 1,000 home visits by the Health Department nurses were tabulated according to the recorded content of the visit. As an illustration of the use of such data, the household visits to samples of families with children of two age groups are analyzed by specific services. It suggests further administrative use of such records as birth registration and reports of school health examinations, especially for case-finding of children who need health supervision.

No attempt is made to suggest standards suitable for all types of communities. The method of analysis could be applied to other communities and offers one more measure of appraising public health nursing activities. Further use of the family record is suggested for administration of health supervision services for children.

ANNOTATIONS

A BIRD'S EYE VIEW OF THE PROBLEMS OF NUTRITION[1]

THE need of a public health policy with respect to nutrition is widely recognized. The problems of nutrition are complex, however, and it is impossible to formulate such a policy without a thorough knowledge of the subject. William Robert Fearon, in his book NUTRITIONAL FACTORS IN DISEASE gives an excellent survey of the field of nutrition in its biochemical aspects, and attempts to relate the findings of the biological chemist to the treatment of disease and its bearing on the public health.

When research on the problem has shown a single uncontested result, such as the use of iodine in the treatment of simple goitre, Fearon makes a clear summary of the history of research in the field and the indications for application of the treatment. When, on the other hand, the results of different workers in the field are incompatible, the reader is left with a summary of several conflicting points of view and insufficient evidence on any of them from which to form his own conclusions.

Occasionally an obvious contradiction arises through this approach. This is exemplified in a discussion of the sources of vitamin A. On page 104, the author states that "Drummond (1935) notes that while Jersey . . . cows produce a pigmented milk of high carotene content, it is relatively poor in the vitamin"; and on page 105, Table IX, from Conrad and Morgan, shows a vitamin A value of 1,700 units per pint for "milk" (presumably mixed milk) and of 2,850 units per pint for Jersey milk. No attempt is made by the author to reconcile these two statements.

A bibliography of 268 titles is appended to the book, which should enable the reader to go back to original sources in an attempt to resolve some of these difficulties. The bibliography, however, does not cover the points of view of all the authors mentioned in the text. Perhaps this

[1] Fearon, William Robert: NUTRITIONAL FACTORS IN DISEASE. London, William Heinemann (Medical Books) Ltd., 1936, 141 pp. 7/6 net.

is unnecessary for the purpose for which the book is apparently designed, namely a presentation of a broad view of the problems in the field of nutrition and their application to a practical program of medical care.

REGINE K. STIX, M. D.

• • •

EUGENICAL STERILIZATION

THE American Neurological Association has rendered a valuable service in presenting a critical and unbiased study of the problem of inheritance of mental disease, and in pointing out the importance of basing a sterilization program on known facts instead of propaganda.[1]

In reviewing the existing laws on sterilization the authors point out that while such laws exist in many parts of the United States, with the exception of California, no state is enforcing its sterilization laws and "the number sterilized is of no great biologic or social significance."[2]

There have been two arguments upon which most propaganda for sterilization has been based: first, that mental disease is on the increase in the United States and, second, that the mentally diseased and feeble-minded reproduce at a much faster rate than does the rest of the population. Careful analysis of available figures shows that the alleged increase in mental disease in some states is due to an increase in mental diseases of old age—a concomitant to an aging population—decreased facilities for caring for such patients under urban living conditions, and increased availability of adequate hospital service for commitment. The age-specific rates of each mental disease in the population have changed little in the last twenty years. There has been little study of birth and marriage rates among the mentally diseased, but even Popenoe, an ardent apostle of sterilization states that "In general, no large group of institutional insane (in California) will produce enough children wholly to reproduce itself, even if it were not sterilized."[3] There is apparently a low marriage rate among the insane and a low reproduction rate among those married.

In evaluating studies of the inheritability of specific diseases, the au-

[1] Committee of the American Neurological Association for the Investigation of Eugenical Sterilization: EUGENICAL STERILIZATION: A Reorientation of the Problem. New York, The Macmillan Company, 1936.

[2] *Ibid.* p. 20.

[3] *Ibid.* p. 44.

thors conclude that since psychiatrists agree that psychoses are groups of conditions of unknown etiology rather than single disease entities, it is difficult to study them as separate inheritable entities. They stress the interrelation of heredity and environment in mental disease, feeblemindedness, and in epilepsy, showing the part that intercurrent disease as well as other environmental factors may play in their etiology. The Committee concludes that on the basis of present knowledge there may be an hereditary factor in dementia praecox, manic depressive psychoses, and epilepsy, but that the number of cases of these diseases appearing in any one family is much less frequent than it would be if their inheritance were subject to Mendelian laws. Feeblemindedness appears to be somewhat more hereditary than mental disease and epilepsy, but here, too, environment may play an important rôle.

In a brief chapter on crime the authors conclude that "while there may be a constitution which . . . . appears as criminal conduct, the effort to breed it out by any eugenical measures is, in the present state of our knowledge not to be recommended, and that more fruitful approaches to crime are to be found in social measures."[4]

On the positive side of the question it is noted that the feebleminded frequently breed useful, docile people who fulfill a definite function in the present structure of society. The Committee notes that men of genius have frequently come of mentally diseased stock and many have, in their later lives, become the victims of mental disease. Compulsory sterilization on a wide basis might prevent the birth of many valuable individuals in both these classifications.

The recommendations of the Committee on the basis of these studies emphasize the importance of environment as well as heredity and state that present knowledge does not warrant the sterilization of normal persons as possible carriers of familial diseases, with rare exceptions. The Committee feels that any sterilization laws in the United States should be on a voluntary basis and should be applicable not only to patients in state institutions but to all patients in the community. It urges adequate machinery for administration of the law and adequate legal protection for those administering it. It recommends the consideration of selective sterilization in the order listed, in the case of:

1. Recognized hereditary diseases such as Huntington's chorea, Friedrich's ataxia, etc.

[4] *Ibid.* p. 152.

2. Feeblemindedness of familial type
3. Dementia praecox
4. Manic depressive psychosis
5. Epilepsy

The final and most important recommendation is for coordinated and planned long time research which would study the incidence of mental disease in control populations as well as in the families of institutionalized patients. The Committee concludes that "society does not need to hurry into a program based on fear and propaganda. Although the problem of mental disease and defectiveness is enormous, there exists no new social or biological emergency."[5]

REGINE K. STIX, M. D.

[5] *Ibid.* p. 183.